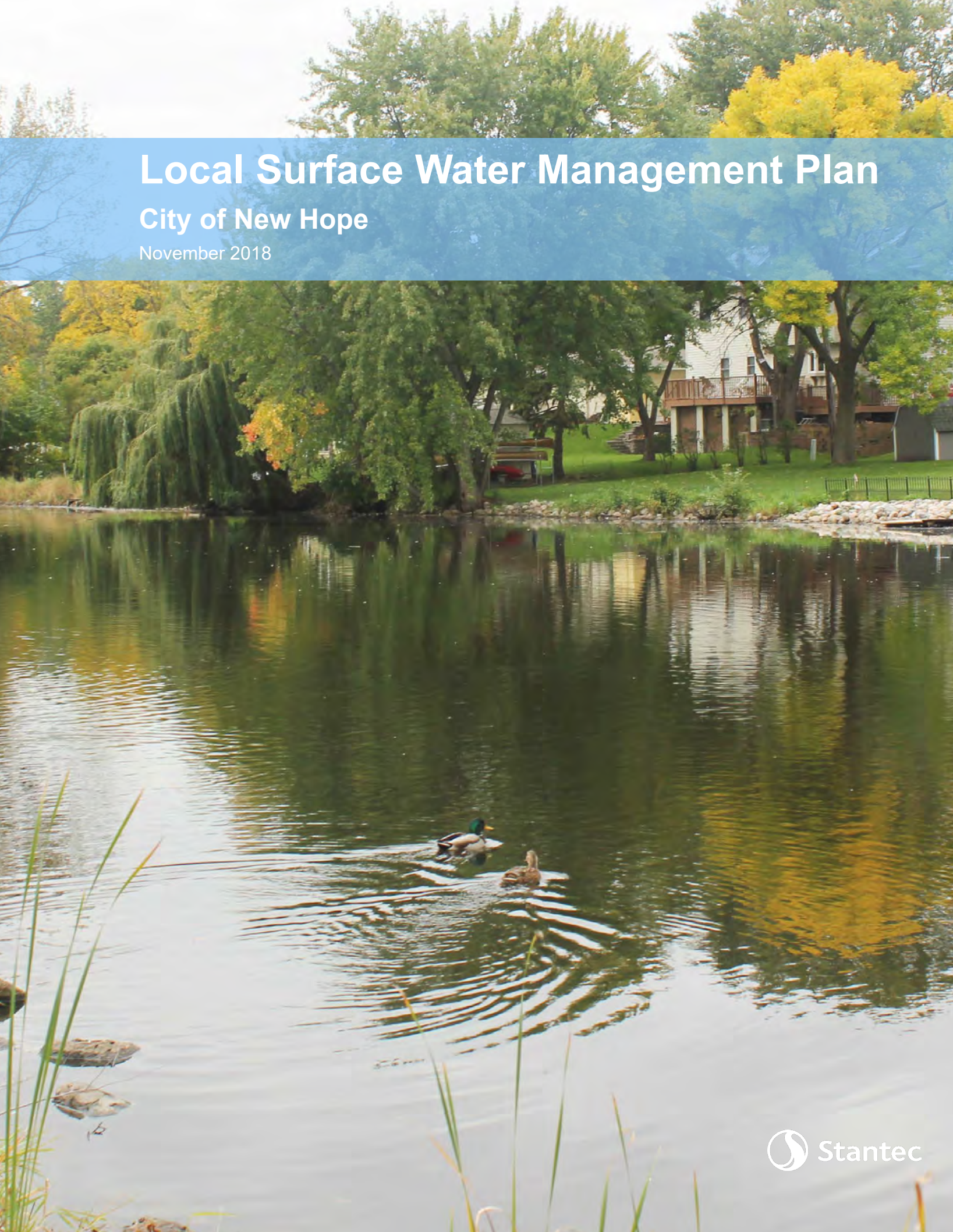
Local Surface Water Management Plan

City of New Hope

November 2018



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EXECUTIVE SUMMARY

Background

This Local Surface Water Management Plan (LSWMP) will serve as a comprehensive planning document to guide the City of New Hope in conserving, protecting, and managing its surface water resources. This Plan has been created to meet the requirements detailed in Minnesota Statutes 103B and Minnesota Rules 8410, administered by the Minnesota Board of Water and Soil Resources. This Plan is also consistent with the goals and policies of the Metropolitan Council's Water Resources Management Policy Plan, and the two watershed management commissions having jurisdiction within the City: Shingle Creek Watershed Management Commission (SCWMC) and Bassett Creek Watershed Management Commission (BCWMC).

This LSWMP is organized into sections that generally follow guidance provided by State statute, rules, and the Metropolitan Council. These sections are described as follows:

- **Section 1** offers an introduction to and purpose of this Plan and includes organizational information on the location of components within this document.
- **Section 2** of this Plan provides an inventory of land and water resources within the City, including a description of the physical setting, available and pertinent water resources data, and land use maps.
- **Section 3** documents the regulatory agencies and their role in the City's surface water management.
- **Section 4** describes past studies and plans related to surface water management in New Hope.
- **Section 5** identifies the stormwater management agreements between New Hope and other entities.
- **Section 6** provides a current assessment of surface water management in the City of New Hope, including a regulatory standards comparison. This section also includes the identification of issues and corrective actions, including flooding and stormwater rate control problems.
- **Section 7** lists the goals and policies identified to address surface water management needs in the City, relating to land development and resource management.
- **Section 8** summarizes capital improvement projects currently planned with known funding sources to implement the goals and policies listed in Section 6, as well as potential activities and funding mechanisms.
- **Section 9** outlines the continued administration of this plan with respect to plan updates and amendments.

The appendices provide additional detail:

- **Appendix A** includes report figures related to the LSWMP.
- **Appendix B** includes the Joint Powers Agreements between the City and both the Shingle Creek Watershed Management Commission and Bassett Creek Watershed Management Commission.
- **Appendix C** provides detailed guidance on how the water quality cash dedication amounts are to be calculated.
- **Appendix D** includes the approved New Hope Design Guidelines document.

Relationship between 2018 and 2008 LSWMPs

The preparation of this plan included a full review of the current surface water system in New Hope, relying heavily on information from the 2008 Local Surface Water Management Plan (LSWMP) and City staff input. The intent of this LSWMP update is to bring New Hope into compliance with current stormwater management regulatory requirements, as specified by the two watershed management organizations having jurisdiction in the City, and state and federal agencies. Once adopted, the LSWMP will officially supersede the 2008 LSWMP.

Current Regulatory Setting

The City has a strong interest in protecting and managing its valuable water and natural resources, recognizing the relationships between resource protection, land use management, development, redevelopment and fiscal responsibility. Sections 3 through 5 of this plan identify and summarize the various regulatory agencies' applicable plans, studies, and agreements, which influence the City's stormwater management program.

System Assessment

Section 6 includes an assessment of the City's current stormwater management system. The assessment identifies management issues that are either identified by the City, the two watersheds with jurisdiction within the City, or other state and federal agencies. These issues are split into two categories:

1. Stormwater management issues that have been addressed by the City.
2. Existing stormwater management issues and possible corrective actions.

Goals and Policies

Following the assessment of the City's current stormwater management system, Section 7 identifies the City's goals and policies for stormwater management. The goals identified in this section represent broad stormwater management categories aimed at addressing the purposes of stormwater management planning identified in Minnesota State Statute 103B.201, as follows:

1. Protect, preserve, and use natural surface and groundwater storage and retention systems;
2. Minimize public capital expenditures needed to correct flooding and water quality problems;

3. Identify and plan for means to effectively protect and improve surface and groundwater quality;
4. Establish more uniform local policies and official controls for surface and groundwater management;
5. Prevent erosion of soil into surface water systems;
6. Promote groundwater recharge;
7. Protect and enhance fish and wildlife habitat and water recreational facilities; and
8. Secure the other benefits associated with the proper management of surface and ground water.

The specific policies under each goal will guide implementation of the LSWMP to achieve the stormwater management goal and provide consistency between the City's policies and the two watersheds with jurisdiction within the City. The goals and policies in Section 7 reflect those identified in the City's 2008 LSWMP, as well as goals and policies necessary for consistency with new local, state and federal standards.

Stormwater Management Implementation

The Implementation Section (Section 8) of the LSWMP describes the specific activities proposed by the City to address the stormwater management issues presented in Section 6 and implement the policies identified in Section 7. Section 8 provides recommended actions related to the City's official stormwater management controls and a list of system improvement projects and activities, as well as other implementation priorities.

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SECTION 1 – PURPOSE AND SCOPE

1.1 AUTHORIZATION

The New Hope City Council authorized the preparation of a Local Surface Water Management Plan (LSWMP) update to the previous 2008 LSWMP. The LSWMP is consistent with the Comprehensive Plan update for the City of New Hope as well as the Watershed Management Plan and rules of both the Bassett Creek Watershed Management Commission (BCWMC) and the Shingle Creek Watershed Management Commission (SCWMC). Previously, the updates to the Local Water Plan and Comprehensive Plan were asynchronous but beginning with this 2018 Local Surface Water Management Plan update, the Plan will be part of the Comprehensive Plan and the two will be updated simultaneously.

1.2 PURPOSE

This Local Surface Water Management Plan (LSWMP) will serve as a comprehensive planning document to guide the City of New Hope in conserving, protecting, and managing its surface water resources. This plan has been created to meet the requirements detailed in Minnesota Statutes 103B and Minnesota Rules 8410, administered by the Minnesota Board of Water and Soil Resources (BWSR). This plan is also consistent with the goals and policies of the Metropolitan Council's 2040 *Water Resources Policy Plan* (Thrive MSP), and the two watershed management commissions having jurisdiction within the City: BCWMC and SCWMC. This plan may be periodically amended to remain current with local practices and policies. Beyond the regulatory requirements this Plan intends to satisfy, the LSWMP will serve as an update to the 2008 Plan.

1.3 SCOPE

This LSWMP serves multiple purposes including statutory and rule compliance. Minnesota statute 103B.235 defines content for Local Surface Water Management Plans. According to the statute's text, each local plan, in the degree of detail required in the watershed plan, shall:

(1) describe existing and proposed physical environment and land use;
(2) define drainage areas and the volumes, rates, and paths of stormwater runoff;
(3) identify areas and elevations for stormwater storage adequate to meet performance standards established in the watershed plan;
(4) define water quality and water quality protection methods adequate to meet performance;
standards established in the watershed plan;
(5) identify regulated areas; and
(6) set forth an implementation program, including a description of official controls and, as appropriate, a capital improvement program.

Minnesota Rules 8410, administered by the Board of Water and Soil Resources (BWSR), provide more detail on local plan content. Though the BWSR guidance applies specifically to watershed management organizations and watershed districts, this guidance has historically been used to frame expectations for municipal plans. According to Minnesota Rules 8410.0160, local plans must include:

1. Executive summary.
2. Water resource management-related agreements, including going power agreements.
3. Existing and proposed physical environment and land use.
4. Existing or potential water resource-related problems.

5. A local implementation program describing solutions to the water resource-related problems identified.
6. Amendment procedures.

The reader will find that New Hope has structured its LSWMP to provide the information required by 8410.0160 without holding strictly to the outline contained in the rules. Through this document, the City provides signposts identifying where a statutory or rulemaking requirement might be addressed.

The New Hope LSWMP must address requirements of the Minnesota Pollution Control Agency's Municipal Separate Storm Sewer System (MS4) program. This program is designed to reduce the sediment and pollution that enters groundwater and surface waters to the maximum extent practicable. The MS4 program is regulated through the National Pollutant Discharge Elimination System (NPDES) permits. These NPDES permits require the development of Storm Water Pollution Prevention Programs (SWPPP).

The LSWMP must also satisfy Metropolitan Council requirements as contained in their 2040 Water Resources Policy Plan. These requirements build on those of Rules 8410.

Beyond state level requirements and those of Metropolitan Council, this plan must conform to the underlying Watershed Management Organization (WMO) plans. Very often, WMOs outline specific content for local plans that go beyond that required by statute and rule. For the WMOs having jurisdiction in New Hope, the following local plan requirements pertain:

Shingle Creek Watershed Management Commission (SCWMC)

Paraphrased from the Shingle Creek Watershed Management Commissions 3rd Generation (April 2013) Watershed Management Plan (WMP):

1. Describe the existing and proposed physical environment and land use.
2. Describe the existing and proposed hydrology and demonstrate that stormwater storage volumes and management sector peak outflow rates meet the requirements specified in the WMP.
3. Identify how the goals and policies, and rules and standards established in the WMP will be implemented at the local level.
4. Identify how the wetlands functions and value assessments required by the SCWMC Plan will be undertaken.
5. Include a policy describing how the member city intends to protect threatened and endangered species and areas of significant natural communities identified by the DNR within their boundaries.
6. Assess existing or potential water resource related problems and identify nonstructural, programmatic, and structural solutions.
7. Summarize the estimated cost of implementation and analyze the member city's ability to finance the recommended actions.
8. Set forth an implementation program including a description of official controls, programs, policies, and a capital improvement plan.

Bassett Creek Watershed Management Commission (BCWMC)

General standards for Local Surface Water Management Plans from BCWMC Watershed Management Plan (Rev. August 2017) as described in Section 5.3.1.1 are, as follows:

1. Conform to Minnesota Statues 103B.235, Minnesota Rules 8410, and the BCWMC Plan.

2. Include problems identified in the BCWMC Plan in the assessment of water resource related problems, and propose solutions consistent with the BCWMC Plan.
3. Assess the need for periodic maintenance of public works, facilities and natural conveyance systems, including public ditches under the city's jurisdiction.
4. Assess the need to establish a water body management classification system to provide for water quality and quantity management.
5. Identify official controls and programs used to enforce policies and requirements of the BCWMC.

Broader responsibilities of the City can be found in Section 5.1.2 of the BCWMC Watershed Management Plan.

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SECTION 2 – PHYSICAL SETTING

2.1 LOCATION AND HISTORY

The City of New Hope is located within Hennepin County in the northwestern portion of the Twin Cities metropolitan area about twelve miles northwest of downtown Minneapolis (see Figure 1, Appendix A). New Hope is a fully-developed community comprised of approximately six square miles bordered by 62nd Avenue North to the north, Medicine Lake Road to the south, Highway 169 to the west, and the City of Crystal to the east.

New Hope was a farming community in the early 1900s. The area was settled as part of the Crystal Lake Township and became the home for many family farms. As housing developments spread west from Minneapolis in the 1930s, the new residents of Crystal Lake Township began the movement to incorporate the township. In 1936, the city of Crystal was incorporated. Forming a city was not supported by all residents in the township. The rural residents in the western half of the township broke away from the city of Crystal and formed their own township. The name the farmers selected for their new township reflected the time: New Hope.

Prompted by rapid development in the early 1950s, the township of New Hope incorporated into the Village of New Hope in 1953. When the township was incorporated, it had 600 residents. The City grew rapidly and was home to over 2,500 people by 1958. This rapid population growth continued through the 1960s, and by 1971, there were 24,000 residents in New Hope. The population of the community has declined slightly since 1971. Population information for the City of New Hope is presented in Table 2.1.

Table 2.1 - Population and Household Data

Year	Population	Households
1960[1]	3,552	---
1970[1]	23,180	6,019
1980[1]	23,087	7,627
1990[1]	21,853	8,507
2000[1]	20,873	8,665
2010[1]	20,339	8,427
2020[2]	21,100	8,900
2030[2]	22,000	9,200
2040[2]	23,100	9,600

[1] US Census Data

[2] Metropolitan Council 2040 Regional Development Framework (Forecasts as of: January 1, 2018)

2.2 TOPOGRAPHY AND DRAINAGE

New Hope is characterized by gently-rolling topography common in the northwest portion of the Twin Cities Metropolitan area, due to past glacial activity. Within this gently rolling topography, a number of poorly-drained depression areas of various sizes exist, supporting the City's wetlands and lakes. Hydraulic connectivity of these depression areas exists via natural overland drainageways or, where these natural drainageways have been blocked by development, via manmade conveyance methods. The natural drainage in New Hope splits between the two watersheds: Shingle Creek to the north and Bassett Creek to the south.

The northwestern portion of the City generally drains northwesterly into Bass Creek, which cuts across the very northwest corner of the City. Once leaving the City, Bass Creek continues to drain

northeasterly and becomes a tributary to Shingle Creek, which is ultimately tributary to the Mississippi River. The northwestern portion of the City tributary to Bass Creek includes the highest percentage of wetlands in the City. These wetlands represent the headwaters of Bass Creek and most of them are DNR protected waters. In addition to the wetlands in this portion of the City, Meadow Lake drains west directly into Bass Creek through a system of pipes.

The northeast portion of the City drains primarily via storm sewer into the City of Crystal, and these flows act as tributaries to Twin Lakes. From the Twin Lakes system, flows discharge to Shingle Creek, and then to the Mississippi River. According to the Minnesota Pollution Control Agency's (MPCA) 2016 Impaired Waters List, Twin Lakes is identified as an Impaired Water for various pollutants. Total Maximum Daily Load (TMDL) studies for a number of these impairments have been completed to determine implementation items to address these impairments.

Much of the southern portion of the City (Bassett Creek Watershed) drains directly into Bassett Creek via the North Branch of Bassett Creek. On the west end of the City, Northwood Lake, a constructed flow-through lake located along the North Branch of Bassett Creek, receives drainage primarily from Plymouth and a smaller portion of New Hope. From Northwood Lake, the North Branch of Bassett Creek drains into the City of Crystal and is tributary to the main channel of Bassett Creek, eventually discharging into the Mississippi River. The southern-most part of the city drains directly to Bassett Creek and Medicine Lake.

2.3 SOILS

The Natural Resources Conservation Service (NRCS) published the *Soil Survey of Hennepin County, Minnesota* in 2004. The soil survey identifies the physical properties of the soils within the county and provides mapping to identify the locations of the various soils types.

The primary benefit of the soil survey to this LSWMP is the classification of various soil types into Hydrologic Soil Groups (HSG), according to the soil's ability to infiltrate water during long-duration storms. The four hydrologic soil groups are: Group A – high infiltration, Group B – moderate infiltration, Group C – slow infiltration, and Group D – very slow infiltration. Figure 2.2 identifies the HSG classifications within the City.

Table 2.2 presents the soil survey data, relates these to HSG classifications, and provides percent of coverage of each soil class within the City. In highly urbanized landscapes like New Hope, however, much of the existing soil material within the City has been compacted, mixed, and possibly imported with urban development. Therefore, the variability and unpredictability of these disturbed soils warrant that a HSG classification identified in the soil survey for any given soil type be reviewed on a site-specific basis to determine the physical infiltration characteristics of the soil.

As identified in Table 2.2, the soils in one-third of the City are not assigned a HSG classification. The soils in the remaining two-thirds of the City do have HSG classifications; however, as mentioned above the site-specific soil infiltration characteristics should be verified on a site-by-site basis. Long-time city residents and the City of New Hope's staff indicate that tighter soils generally cover most of the city. However, pockets in the northern portions of the City are covered by sandy soils exhibiting a high infiltration capacity. It appears that infiltration BMPs will be likely to succeed in the sandy portions of the City only, while filtration BMPs with underdrains may be more appropriate for use in most of the City.

Table 2.2 - Soil Survey Data for New Hope

Hydrologic Soil Group (HSG)	Total HSG Coverage (ac)	HSG Coverage (% of City Limits)	Soil Series	Soil Series Coverage (% of City Limits)
A	73.9	2%	Hubbard	2%
A/D	62.5	2%	Houghton	2%
B	2058.8	63%	Angus	1%
			Dundas	2%
			Hamel	2%
			Koronis	< 1%
			Lester	51%
			Nessel	< 1%
			Udorthents	5%
B/D	0.84	< 1%	Cordova	< 1%
			Glencoe	< 1%
			Hamel	< 1%
Urban Land[1]	1043.5	32%	No HSG classification	32%
Water[1]	36.2	1%		1%
TOTAL	3275.8	100%	-	100%

[1]Area given no HSG classification in the 2004 Soil Survey of Hennepin County, Minnesota

2.4 GEOLOGY AND GROUNDWATER

The soils within New Hope include variable soil types ranging from pockets of sandy soil in northern portions of the City, to heavier soils throughout large portions of the remainder of the City. This surficial material overlays St. Peter Sandstone. For additional information, consult the *Geologic Atlas: Hennepin County* (Balaban,1989).

New Hope provides water to its customers in cooperation with the cities of Crystal and Golden Valley through a joint powers organization called the Joint Water Commission (JWC). The JWC has a long-term contract to purchase treated water from the City of Minneapolis. The water is drawn from the Mississippi River, treated, and pumped to reservoirs in Crystal and Golden Valley. From there, it is distributed to the cities of New Hope, Crystal, and Golden Valley.

2.5 CLIMATE

Climate data for the Twin Cities (Station 215838) are published by the National Weather Service (NWS) station at Chanhassen, MN. The NWS is a branch of the National Oceanic and Atmospheric Administration (NOAA). Table 2.3 provides a summary of precipitation data for the Twin Cities area.

Table 2.3 - Average Monthly Precipitation, 1971-2016

Month	Precipitation (in)
January	0.89
February	0.84
March	**1.79**
April	2.67
May	3.46
June	4.52
July	3.85
August	4.15
September	2.79
October	2.24
November	1.71
December	1.12
ANNUAL	**30.03**

Rainfall frequency estimates are used as design tools in water resource projects. Rainfall frequencies are summarized in the National Oceanographic (NOAA) Atlas 14-Point Precipitation Frequency Estimates. Previously, Technical Paper No. 40 (TP-40) Rainfall Frequency Atlas of the United States (also published by NOAA) was used to determine rainfall frequency estimates. The use of Atlas 14 estimates provides an advantage to Technical Paper No. 40, as estimates are based on data from denser networks with longer periods of record, and regional frequency analyses and new spatial interpolation techniques are used. Table 2.4 lists rainfall frequencies for the City of New Hope, interpolated to the City's Civic Center Park from surrounding rainfall stations. The data taken from Atlas 14 are solely based on historical rainfall events and are not an extrapolation of data trends to predict future events.

Table 2.4 – NOAA Atlas 14 Point Precipitation Frequency Estimates, 24-hr Rainfall Depths, City of New Hope

Recurrence Interval (yrs.)	24-hr Rainfall Depth (in)
1	2.49
2	2.87
5	3.59
10	4.29
25	5.38
50	6.34
100	7.39

2.6 WATER RESOURCES

The City of New Hope has developed around a variety of surface water resources that are both aesthetically and recreationally valuable to the community, including lakes, wetlands, and creeks. The Minnesota Department of Natural Resources (DNR) has regulatory jurisdiction over many of the City's waterbodies defined as Public Waters of the State. All of the waterbodies identified by the Minnesota DNR as Public Waters are included in Table 2.5 and identified in Map 1 (Appendix A).

Table 2.5 - Minnesota DNR Public Waters in New Hope[1]

Type	Name	DNR ID	LSWMP ID
Lakes	Meadow Lake	27-57P	SC-P1.1B
	Northwood Lake	27-627P	BC-P2.5A
Wetlands	Victory Park Pond	27-568W	SC-P7.3
	Unnamed Wetland	27-569W	SC-P6.8
	Unnamed Wetland	27-570W	SC-P6.6A
	Unnamed Wetland	27-628W	SC-P5.5/5.6
Creeks	Bass Creek	-	SC-P4.4
	Unnamed Tributary of Bassett Creek[2]	-	BC-P2.5A/3.15A

[1] Source: Minnesota DNR PWI Maps and Lists

[2] Identified in the Bassett Creek Watershed Management Plan as "North Branch of Bassett Creek"

2.6.1 CREEKS

The tributary area to Bass Creek includes the northwest portion of the City, however, most of this tributary area drains through a series of large wetlands, storm sewer, and ditches into Plymouth prior to discharging into Bass Creek. Only the very northwest corner of the City, including the discharge from Meadow Lake, is directly tributary to Bass Creek as it drains through the far northwest corner of the City, crossing under TH 169 and exiting the City of New Hope under 62nd Avenue. Proceeding north out of the City, Bass Creek becomes the headwaters of Shingle Creek, which discharges to the Mississippi River. According to the 2016 Minnesota Impaired Waters List, Bass Creek is designated by the MPCA as an Impaired Water for Fishes bioassessments and chloride, discussed in more detail in Section 6.6 of this Plan.

Shingle Creek does not flow through New Hope, flowing north and east of City. However, Bass Creek is tributary to Shingle Creek, along with the northeast section of the City, draining to Shingle Creek via storm sewer through Twin Lakes. Shingle Creek is designated by the MPCA as an Impaired Water for Chloride and the implementation plan for addressing this impairment impacts the City of New Hope's stormwater management program and is therefore mentioned in this section. Impaired Waters are discussed in more detail in Section 6.4 of this plan.

In the southern portion of the City, the North Branch of Bassett Creek discharges into New Hope from Plymouth under TH 169 into Northwood Lake. The North Branch of Bassett Creek flows out of Northwood Lake and proceeds east through Northwood Park into Crystal, prior to discharging into the main Bassett Creek channel. The North Branch of Bassett Creek is classified as a Priority 1 Stream, per Section 2.7.2.2 of the 2015 BCWMC Plan.

2.6.2 LAKES

Meadow Lake

Meadow Lake is located in the north-central portion of the City. It is a relatively small, shallow lake with a surface area of approximately eleven acres. This lake is an identified DNR Public Water and is also included on the State Impaired Waters list for excess nutrients (see Section 6.4 for more information). In 2010, the Meadow Lake Nutrient TMDL Implementation Plan was prepared for the Shingle Creek Watershed Management Commission. The Plan outlines phosphorous reduction activities and the stakeholders responsible for implementing those activities.

Water quality reports for Meadow Lake can be found at:
http://www.shinglecreek.org/water-quality.html.

Northwood Lake

Northwood Lake, located southeast of the TH 169 Rockford Road interchange, is classified as a Priority 1 Shallow Lake, per Section 2.7.2.2 of the 2015 BCWMC Plan. This lake has a relatively large drainage area of approximately 1355 acres, which includes roughly 824 acres from the City of Plymouth. Northwood Lake has a surface area of approximately fifteen acres. As discussed earlier, this lake is an identified DNR Public Water and is also included on the State Impaired Waters list for excess nutrients (see Section 6.4 for more information). At this time, no TMDL has been completed for Northwood Lake. BCWMC completed the *Northwood Lake Watershed and Management Plan* for Northwood Lake in 1996, identifying specific Best Management Practices (BMPs) to improve the water quality within the lake. BMPs identified in the BCWMC plan are included in Section 8 of New Hope's LSWMP.

Existing lake monitoring information was identified for Northwood Lake from two sources: Bassett Creek WMC and Metropolitan Council. The most current lake monitoring information for Northwood Lake can be found at the following website locations:

- **Bassett Creek WMC:**
  http://www.bassettcreekwmo.org/application/files/6814/8945/3994/2016_Northwood_Lake_Report.pdf
- **Metropolitan Council:**

  https://eims.metc.state.mn.us/Site/27062700-AL

2.6.3 WETLANDS

In addition to the traditional stormwater management function of wetlands within the City as an important means to provide flood storage and reduce runoff rates, the City of New Hope recognizes the water quality treatment, wildlife habitat, and aesthetic benefit provided by wetlands. Wetland protection and restoration has become an important City goal to ensure that the City's wetlands are preserved for future generations.

The protection and restoration of wetlands is integral to the City's proposed improvements which aim to provide additional water quantity and quality treatment upstream of the City's wetlands. Figure 7 shows the results of the most recent National Wetland Inventory within City limits.

The City of New Hope completed a Wetland Inventory and Management Plan in 1999, including a field inventory of all wetlands identified in the City and an evaluation of the functions and values of each wetland. To fully comply with Met Council requirements, this document must be expanded to incorporate the necessary wetland management standards, including buffer standards. While outside of the scope of this LSWMP, it is the City's intent to revise this 1999 document to comply with Met Council requirements (see Section 6.3 for more information).

2.7 DRAINAGE SYSTEMS

The majority of the City's stormwater infrastructure was constructed prior to the mid-1970s, and as was the practice at that time, stormwater management relied heavily on large diameter trunk storm sewer to route stormwater away from impervious areas quickly and discharge this stormwater directly into nearby wetlands, lakes, and creeks. As a result, local stormwater basins providing both rate control (to reduce downstream local flooding) and water quality treatment (to provide additional protection to downstream natural resources) are not common in New Hope. Rather, the City's stormwater system discharges large portions of the City's residential and commercial/industrial areas directly to nearby water resources. A schematic plan of the drainage system was prepared for this study and is shown on Map 1 attached to this report (Appendix A). Hydrologic and hydraulic modeling for the portion of the city within the BCWMC can be found in the BCWMC's *XP-SWMM Phase II Final Report* (2017).

One challenge for the City as a part of this LSWMP will be to identify locations where the City's existing stormwater system can be improved or new features added within existing development or redevelopment projects. The benefit to the City because of these stormwater improvements could potentially include:

- Reduction in localized flooding
- Enhancement and restoration of existing natural resources
- Creation of new natural resources
- Improved water quality in the City's lakes, wetlands, creeks

2.8 FLOODPLAIN INFORMATION

The Federal Emergency Management Agency (FEMA) updated the Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRM) for Hennepin County in 2016. The FIRM map shows all 100-yr floodplain boundaries for the county and includes both the floodway and flood fringe for rivers, lakes, wetlands, and streams where FEMA has completed detailed engineering studies. Flood elevations are also provided for areas where detailed studies have been completed. FEMA FIRM maps are identified in New Hope for the following waterbodies or locations:

- **Bass Creek** – Panel #27053C0184F
- **Meadow Lake** – Panel #27053C0192F
- **Northwood Lake, North Branch of Bassett Creek, Hidden Valley Park pond** – Panel #27053C0194F
- **62nd Avenue discharge to Crystal** – Panel #27053C0203F
- **Fred Sims Park, Memory Lane Pond (Crystal)** – Panel #27053C0211F
- **36th Avenue discharge to Crystal** – Panel #27053C0213F

The Bassett Creek Watershed Management Commission (BCWMC) Watershed Management Plan (WMP) identifies BCWMC's adopted 100-year floodplain elevations for waterbodies in New Hope within the jurisdiction of the BCWMC, namely Northwood Lake and the North Branch of Bassett Creek. The 100-year floodplain information is identified in Table 2-9 of the BCWMC Watershed Management Plan and includes 100-year floodplain elevations for various areas of the City (revised May 2017).

2.9 PLANNING AND DEVELOPMENT

2.9.1 COMPREHENSIVE PLAN

In response to local needs and State Statutes requirements, the City of New Hope has conducted a planning process to update its Comprehensive Plan through the year 2040. The Comprehensive Plan is intended to define the natural environment, land use, transportation, and infrastructure goals of the community as a means of defining New Hope's future community growth and vision of development and/or redevelopment.

Beyond the desires and needs of the local community, the Metropolitan Council's *THRIVE MSP 2040* plan also establishes a regional context in which the City of New Hope must define its role and direct its future. This Regional Development Framework mandates specific regional criteria that must be addressed in the 2040 Comprehensive Plan Update.

2.9.2 LAND USE

Since the 1976 Comprehensive Plan, New Hope has matured to a fully-developed community. The City has undertaken numerous planning efforts since 1976 that have addressed more specific planning topics or issues such as 42nd Avenue Improvement Study/ 42nd Avenue/City Center Market Study; New Hope Vacant Land Study Phase I and II, Winnetka Center Market Study, 1998 New Hope Comprehensive Plan Update, Bass Lake Extension Redevelopment Area, 2002 Livable Communities Study, 2003 City Center Task Force Study; Medicine Lake Rd Study, DeCola Ponds Feasibility Study, and the Complete Streets Study.

New Hope is a fully-developed community lacking large undeveloped tracts of land which raises the need for in-place expansion and redevelopment of land uses. The following map (Figure 3, Appendix A) graphically illustrates the existing distribution and extent of a variety of land use types in New Hope.

SECTION 3 – REGULATORY SETTING

3.1 CITY SERVICES

The New Hope Department of Public Works manages the City's stormwater infrastructure and is responsible for the monitoring and maintenance of storm sewers, ponding areas, water quality devices and outlet control structures. The City Department of Public Works provides the design, operation, and maintenance necessary to minimize local flooding and improve water quality in the City's stormwater system. Public Works also coordinates with watershed management organizations and other outside agencies in water resource management and conservation.

The City is responsible for reviewing and permitting proposed projects and ensuring that they are in line with appropriate rules and regulations. A search of the City's ordinances identified following sections as being related to surface water management and protection:

Section 2-62 Watershed Management Tax District
Section 4-25 Shoreland Permit Overlay District
Section 4-26 Floodplain District
Section 4-35 Administration – Site Plan Review
Section 5-1 Purpose and General
Section 5-3 Permits, Licenses, and Other Charges
Section 5-7 Drainage
Section 5-9 Illicit Discharge or Connection to Stormwater System
Section 6-10 Dispersion of Percolating Waters
Section 8-32 Lawn Fertilizer Application Control
Section 13-5 Design Standards
Section 13-7 Required Improvements
Section 14 Fees, Charges, and Financial
Appendix D Floodplain and Wetland Systems District

3.2 HENNEPIN COUNTY

Hennepin County, originally part of Dakota County, was created in 1851. The County provides many services within the City of New Hope, including health services and property and vital records.

Hennepin County was the first county to begin groundwater planning in 1988, with authority delegated to the Hennepin Conservation District (HCD). The plan received state approval in March 1994. Although the county has not formally adopted the plan, the county is proceeding with implementation of many aspects of the plan. In addition, the County's Department of Environmental Services provides education, outreach, and funding to individuals and organizations. These programs include the Hennepin County River Watch and the Wetland Health Evaluation Program.

In December 2013, Minnesota Board of Water and Soil Resources (BWSR) issued an order to dissolve the Hennepin Conservation District (HCD). All responsibilities and authorities of the HCD were transferred to the Hennepin County Board of Commissioners. With this transfer, Hennepin County is now a soil and water conservation district (SWCD), Hennepin County was substituted for HCD in all contracts entered by HCD, and Hennepin County is eligible for all grants for which HCD was eligible.

3.3 WATERSHED MANAGEMENT ORGANIZATIONS

In 1982, the legislature approved the Metropolitan Surface Water Management Act, Chapter 103B of Minnesota Statutes. This act requires all metro-area local governments to address surface water management through participation in a Watershed Management Organization (WMO). A WMO can be organized as a watershed district, as a Joint Powers Agreement (JPA) among municipalities, or as a function of county government.

The City of New Hope is divided into multiple drainage basins that flow to two separately managed watersheds. Figure 5 shows the two watershed management organizations with jurisdiction in the City. The powers and duties of these Minnesota statutory authorities are detailed in Minnesota Statues 103B.211.

3.4.1 SHINGLE CREEK WATERSHED MANAGEMENT COMMISSION (SCWMC)

SCWMC was formed in 1984 and incorporates the northern portion of the City of New Hope, discharging to Shingle Creek via Bass Creek or the Twin Lakes system. The jurisdictional boundary for the SCWMC within New Hope includes approximately 2,125 acres and is identified in Figure 5 (Appendix A).

3.4.2 BASSETT CREEK WATERSHED MANAGEMENT COMMISSION (BCWMC)

In 1984, the existing Bassett Creek Flood Control Commission (formed in 1968) revised its JPA and created the BCWMC. The BCWMC incorporates the southern portion of the City of New Hope, discharging to Bassett Creek via the North Branch of Bassett Creek or Medicine Lake. The jurisdictional boundary for the BCWMC within New Hope includes approximately 1,267 acres and is identified in Figure 5 (Appendix A). More information can be found at their website: http://www.bassettcreekwmo.org/.

3.4 METROPOLITAN COUNCIL

Established by the Minnesota Legislature in 1967, the Metropolitan Council is the regional planning organization for the Twin Cities, seven-county area. The Council manages public transit, housing programs, wastewater collection and treatment, regional parks, and regional water resources. Council members are appointed by the Minnesota Governor.

The Metropolitan Council reviews municipal comprehensive plans, including this Local Surface Water Management Plan. The Council adopted the *2040 Water Resources Policy Plan* in May 2015, establishing the expectations to be met in local plans. The Council's goals focus on water conservation and reuse to "promote a more sustainable region."

3.5 STATE BOARD OF WATER AND SOIL RESOURCES (BWSR)

The Minnesota Board of Water and Soil Resources (BWSR) works through local government agencies to implement Minnesota's water and soil conservation policies. The BWSR is the administrative agency for soil and water conservation districts, watershed districts, watershed management organizations and county water managers. The BWSR is responsible for implementation of the Metropolitan Surface Water Management Act and the Wetland Conservation Act. Staff members are located in nine field offices throughout the state.

First established in 1937 as the State Soil Conservation Committee, the agency became part of the University of Minnesota in the 1950s, transferred to the Department of Natural Resources in 1971, and then transferred to the Department of Agriculture in 1982. In 1987 the State Legislature established the current Board of Water and Soil Resources. The Board consists of twenty members, appointed by the governor to four-year terms. Multiple state and local agencies are represented on the Board. In 1992, the BWSR adopted rules (8410), establishing required content for Local Surface Water Management Plans. These rules were most recently amended in 2015.

The City is the Local Government Unit (LGU) for the Wetland Conservation Act. The City will continue to administer Wetland Conservation Act permits.

3.6 MINNESOTA POLLUTION CONTROL AGENCY (MPCA)

The MPCA is the state's lead environmental protection agency. Created by the State Legislature in 1967, the MPCA is responsible for monitoring environmental quality and enforcing environmental regulations to protect the land, air and water. The MPCA regulates New Hope's management of wastewater, stormwater and solid waste.

The MPCA is the permitting authority in Minnesota for the National Pollutant Discharge Elimination System (NPDES), the federal program administered by the Environmental Protection Agency to address polluted stormwater runoff. The MPCA included the City of New Hope on the list of entities identified as owning and operating a Municipal Separate Storm Sewer System (MS4), and these entities obtained NPDES permit coverage in 2007. Note that New Hope's application for coverage was developed concurrently with the 2008 Local Surface Water Management Plan. To obtain and maintain coverage, the City is required to develop a Storm Water Pollution Prevention Program (SWPPP) to address six minimum control measures:

1. Public education and outreach
2. Public participation/involvement
3. Illicit discharge detection and elimination
4. Construction site stormwater control
5. Post-construction stormwater management
6. Pollution prevention/good housekeeping

In addition to the NPDES program, the MPCA is required to publish a list of impaired waters; lakes and streams in the state that are not meeting federal water quality standards. For each water body on the list, the MPCA is required to conduct a study to determine the allowable Total Maximum Daily Load (TMDL) for each pollutant that exceeds the standards. The 2018 MPCA list of impaired waters identifies 2,627 TMDL reports needed throughout the state. Local governments are required to incorporate completed TMDL studies into their Local Water Plans and review their SWPPPs to determine if additional BMPs are needed to comply with the TMDL waste load allocation. Impaired waters in New Hope are summarized in Table 6.3 in Section 6.4 of this Plan.

In response to these multiple regulatory activities, the MPCA publishes and maintains the *Minnesota Stormwater Manual* in an interactive wiki format periodically updated, providing stormwater management tools and guidance. The Manual presents a unified statewide approach to stormwater practices.

Published by the MPCA, the *Minnesota Stormwater Manual* provides detailed guidance on stormwater management practices in the region. Low-impact development, better site design, and on-site infiltration of runoff are recommended to offset the adverse impacts created by additional impervious surfaces. These runoff volume reduction methods provide multiple benefits, including groundwater recharge, protection of natural stream banks, reduced nutrient loads to lakes and wetlands, and reduced thermal impacts to aquatic habitat. Applicable City standards will reference this document for additional design guidance for a variety of stormwater management practices.

3.7 MINNESOTA DEPARTMENT OF NATURAL RESOURCES (DNR)

Originally created in 1931 as the Department of Conservation, the DNR has regulatory authority over the natural resources of the state. DNR divisions specialize in waters, forestry, fish and wildlife, parks and recreation, land and minerals, and related services. The DNR administers programs in lake management, shoreland management, dam safety, floodplain management, wild and scenic rivers, the Public Waters Inventory (PWI), and permitting of development activity within public waters. A list of the PWI waterbodies identified in the City of New Hope is included in Table 2.6.

3.8 MINNESOTA DEPARTMENT OF HEALTH (MDH)

The MDH manages programs to protect the public health, including implementation of the Safe Drinking Water Act (SDWA), a federal law that protects drinking water supplies under the U.S. Environmental Protection Agency (EPA). The MDH has regulatory authority for monitoring water supply facilities such as water wells, surface water intakes, water treatment, and water distribution systems. The MDH also is responsible for the development and implementation of the wellhead protection program.

3.9 MINNESOTA ENVIRONMENTAL QUALITY BOARD (EQB)

The EQB is comprised of five citizen members and the heads of nine state agencies that play an important role in Minnesota's environment and development. The EQB develops policy, creates long-range plans and reviews proposed projects that may significantly influence Minnesota's environment.

3.10 MINNESOTA DEPARTMENT OF TRANSPORTATION (MNDOT)

MnDOT is the state agency responsible for the planning, improvement, and maintenance of the state's highway system. MnDOT approval is required for any construction activity within state rights-of-way. MnDOT also administers funding for qualifying transportation projects completed in the City. Anticipated activities of MnDOT are periodically published in their State Transportation Improvement Plan (STIP).

3.11 U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

The EPA develops and enforces the regulations that implement environmental laws enacted by Congress; however, the MPCA bears responsibility for implementing many of the resulting programs within Minnesota. The NPDES program and the Impaired Waters List are both the result of the Clean Water Act, administered by the EPA.

3.12 U.S. ARMY CORPS OF ENGINEERS (USACE)

Under Section 404 of the Clean Water Act, including subsequent modifications, the EPA and the USACE regulate the placement of fill into all wetlands of the U.S. In 1993, there was a modification of the definition of "discharge of dredged material" to include incidental discharges associated with excavation. This modification meant that any excavation done within a wetland required the applicant to go through Section 404 permitting procedures. In 1998, however, this decision was modified so that excavation in wetlands is now regulated by the USACE only when it is associated with a fill action.

3.13 FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

FEMA manages federal disaster mitigation and relief programs, including the National Flood Insurance Program (NFIP). This program includes floodplain management and flood hazard mapping. FEMA updated the Flood Insurance Rate Maps (FIRM) for New Hope in 2016. Section 2.8 includes a list of waterbodies and locations identified in the FIRM maps, along their map panel number.

3.14 NATURAL RESOURCES CONSERVATION SERVICE (NRCS)

The Natural Resources Conservation Service (NRCS) is a division of the U.S. Department of Agriculture. Formerly named the Soil Conservation Service (SCS), the NRCS provides technical advice and engineering design services to local conservation districts across the nation. The *Soil Survey of Hennepin County, Minnesota* was published by the NRCS in 2004. The NRCS also developed hydrologic calculation methods that are widely used in water resources design.

3.15 U.S. GEOLOGICAL SURVEY (USGS)

The USGS provides mapping and scientific study of the nation's landscape and natural resources. USGS maps provide the basis for many local resource management efforts.

3.16 U.S. FISH AND WILDLIFE SERVICE (USFWS)

The USFWS works to conserve and protect the nation's fish, wildlife, plants and habitat. The USFWS developed the National Wetlands Inventory (NWI) beginning in 1974, to support federal, state and local wetland management work.

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SECTION 4 – RELATED STUDIES, PLANS AND REPORTS

4.1 2008 NEW HOPE LOCAL SURFACE WATER MANAGEMENT PLAN (LSWMP)

The City's 2008 Local Surface Water Management Plan serves as the basis for the 2018 LSWMP. The 2008 LSWMP identifies, regional stormwater quantity and quality improvements within the City to address local and regional flooding issues, water quality improvement, infrastructure management, stormwater planning, etc. for future development, redevelopment, and capital improvement projects within the City.

To meet current stormwater management regulatory requirements, the City must update this 2008 LSWMP to comply with various state, regional, and local agencies with jurisdiction in the City. The scope of this LSWMP includes updates to portions of the 2008 LSWMP including:

- Discussions regarding the current regulatory setting in which the LSWMP is being prepared
- Assessment of the City's stormwater management system, including the identification of issues and possible corrective actions
- The City's stormwater management goals and policies
- Implementation of the City's stormwater management system
- Coordination between the LSWMP and the Water Management Plans of the two WMOs with jurisdiction in New Hope (SCWMC and BCWMC)

The intent of this LSWMP update is to bring the City of New Hope into compliance with current stormwater management regulatory requirements and this update will supersede the 2008 LSWMP. The 2008 Surface Water Management Plan superseded the 1996 Surface Water Management Plan when it was adopted.

4.2 2013 SCWMC THIRD GENERATION WATERSHED MANAGEMENT PLAN (WMP)

The SCWMC Third Generation Watershed Management Plan was adopted in April 2013. In the first-generation plan, the Commission established standards in eight management areas, including runoff management, floodplain management, shoreland management, water quality monitoring, erosion and sedimentation control, stormwater treatment, wetlands management and groundwater protection. The purpose of this plan is to describe how the Shingle Creek Watershed Management Commissions (SCWMC) will manage activities in the two watersheds between 2013 and 2022.

Stormwater management implementation items identified in the SCWMC plan impacting New Hope are included in the System Assessment section (Section 6) of this Plan. The stormwater management goals identified in the SCWMC plan are incorporated into the Goals and Policies section (Section 7) of this Plan. The City's implementation plan for the stormwater management items impacting New Hope and goals identified in the SCWMC plan is included in the Implementation section (Section 8) of this Plan.

4.3 2015 BCWMC WATERSHED MANAGEMENT PLAN (WMP)

The BCWMC Watershed Management Plan was adopted in September 2015 and sets the vision and guidelines for the management of surface water within the boundaries of the BCWMC. The Watershed Management Plan summarizes the location, history, goals, policies, and implementation tasks of the BCWMC. The BCWMC's general goals fall under the categories of water quality, flood control, erosion and sediment control, stream restoration, wetland management, groundwater, public ditches, and public involvement and information.

Stormwater management implementation items identified in the BCWMC plan impacting New Hope are included in the System Assessment section (Section 6) of this Plan. The stormwater management goals identified in the BCWMC plan are incorporated into the Goals and Policies section (Section 7) of this Plan. The City's implementation plan for the stormwater management items impacting New Hope and goals identified in the BCWMC plan is included in the Implementation section (Section 8) of this Plan.

4.4 2005 SCWMC SHINGLE CREEK CORRIDOR STUDY

Completed in August 2005, the intent of this plan is not to prescribe specific improvements, but to develop a set of standards and principles to be used by riparian cities to manage the Shingle Creek corridor to further its ecological restoration. Although not directly tributary to the Shingle Creek Corridor as identified by this study, the City of New Hope is within the overall tributary area to Shingle Creek and thus will seek to incorporate the ecological restoration goals (as they apply to an upstream tributary) into the LSWMP. The SCWMC Water Quality Plan can be used as a reference regarding the Corridor Study.

4.5 2007 TWIN AND RYAN LAKES NUTRIENT TOTAL MAXIMUM DAILY LOAD (TMDL)

The Twin and Ryan Lakes Nutrient TMDL and Implementation Plan was approved by the EPA in November 2007. This TMDL study addresses a nutrient impairment in the Twin Lake chain of lakes. The goal of this TMDL is to quantify the pollutant reductions needed to meet State water quality standards for nutrients in South Twin, Middle Twin, North Twin and Ryan. The lake system discharges into Shingle Creek, which ultimately discharges into the Mississippi River. Water quality in North and South Twin Lake is considered poor as there are frequent algal blooms, while Ryan and Middle Twin Lake have more moderately degraded water quality. North and South Twin Lakes do not currently support recreational activities while Ryan and Middle Twin Lake partially support recreational activities.

Waste Load Allocations (WLAs) and Load Allocations (LAs) to meet State standards indicate that nutrient load reductions ranging from 0 to 76 percent would be required to consistently meet standards under average precipitation conditions. As detailed by the MPCA, to reduce phosphorus loading in the chain of lakes, it is recommended that improvements to wetland 639W, internal load management and the reduction of nonpoint sources of phosphorus by retrofitting BMPs be completed. The SCWMC publishes a five-year review of the progress made towards meeting the nutrient load reduction goal outlined in the TMDL.

4.6 2006 SCWMC WATER QUALITY PLAN

The SCWMC Water Quality Plan (adopted September 2006) is intended to help achieve a Second-Generation Management Plan goal of protecting and improving water quality. The SCWMC Water Quality Plan is intended to:

- Set forth the Commissions' water quality goals, standards, and methodologies in more detail than the general goals and policies established in the Second-Generation Management Plan.
- Provide philosophical guidance for completing water resource management plans and TMDLs; and,
- Provide direction for the ongoing water quality monitoring programs that will be essential to determining if the TMDLs and implementation program are effectively improving water quality.

4.7 2007 SHINGLE CREEK CHLORIDE TOTAL MAXIMUM DAILY LOAD (TMDL)

The Shingle Creek Chloride TMDL has been approved by the MPCA and an Implementation Plan has been completed. The TMDL analysis determined that most of chloride in the Shingle Creek watershed is derived from nonpoint sources including road deicing, commercial and industrial deicing, and fertilizer application, with the primary source being road salt and salt substitutes applied to the dense network of local roads and county and state highways in the watershed. The TMDL concluded that an overall 71 percent reduction in chloride load to Shingle Creek must be achieved to meet State

chloride concentration standards. Aimed at reducing chloride loads to Shingle Creek, the Implementation Plan for this TMDL includes tables identifying the City's current activities and proposed BMPs or activities related to road deicing, grouped into the following categories:

- Product Application Equipment and Decisions.
- Product Stockpiles.
- Operator Training.
- Clean-up/Snow Stockpiling.
- Ongoing Research into Salt Alternatives.

The SCWMC publishes a five-year review of the progress made towards meeting the chloride load reduction goal outlined in the TMDL.

4.8 2014 UPPER MISSISSIPPI RIVER BACTERIA TMDL STUDY AND PROTECTION PLAN

The 2014 Upper Mississippi River Bacteria TMDL Study and Protection Plan focuses on pollutant reduction for many stream reaches in the Upper Mississippi watershed, including Shingle Creek. The plan, which was a joint project between the MPCA and the MDH, identifies the reduction in pollutant loading and implementation activities needed so that the Upper Mississippi River can meet the water quality standard for aquatic recreation due to *E. coli.*

The study identified potential bacteria sources, including humans, pets, livestock, wildlife, and land cover, and carried out a water quality analysis to determine TMDLs. Finally, reduction needed to meet TMDLs was calculated, which for Shingle Creek reach varied from 13-69% depending on conditions, and implementation strategies were developed. Monitoring will be carried out through the MPCA intensive watershed monitoring approach, which is on a ten year cycle.

4.9 2016 TWIN CITIES METROPOLITAN AREA CHLORIDE TMDL STUDY

The 2016 Twin Cities Metropolitan Area Chloride TMDL Study looks at Chloride impairment of water resources within the 7-county metropolitan area. Similar to the Shingle Creek Chloride TMDL (Section 4.7), this study found that winter maintenance is a main contributor of chloride to water resources, and that residential water softeners also play a significant role. The study recognizes the challenges to winter chloride loading reductions, because there is currently no safe and cost-effective alternative for melting ice.

Implementation practices recommended by the study focused on improved winter maintenance to reduce the amount of excess salt used and continued monitoring of chloride concentration trends in waterbodies.

4.10 BASSETT CREEK MAIN STEM WATERSHED MANAGEMENT PLAN

The Bassett Creek Main Stem Watershed Management Plan (completed for the BCWMC in June 2000) establishes priorities and provides guidelines for the cities of Plymouth, Minnetonka, St. Louis Park, New Hope, Crystal, Golden Valley, Robbinsdale, and Minneapolis, the BCWMC, and citizens for meeting water quality goals set for the Main Stem of Bassett Creek. The BCWMC goal for the Bassett Creek Main Stem is a management classification of Level III, meaning its water quality should support fishing, aesthetic viewing, and wildlife observation activities. As part of the Bassett Creek Main Stem Plan, in-pond improvement options and site-specific structural best management practices for each drainage district were evaluated. However, none of the recommended in-pond improvement options are identified in the City of New Hope.

The Bassett Creek Main Stem Plan also recommends that an inventory of stream channel erosion sites be performed in two phases by member cities. Phase I is the acquisition of all existing sources of information regarding known stream channel erosion. Phase II is a field inventory of problematic stream sites along the entire length of the creek. Since the completion of the Bassett Creek Main Stem Plan, the City of New Hope has completed the channel erosion inventory for Bassett Creek.

None of the in-pond or in-stream improvement options are identified in the City of New Hope, thus no further specific action by the City is necessary at this time. However, the Bassett Creek Main Stem Plan echoes the general best management practices recommendations offered for the entire Bassett Creek watershed. These general BMPs are identified in the System Assessment (Section 6) section of this document.

4.11 BASSETT CREEK PARK POND WATERSHED MANAGEMENT PLAN

The Bassett Creek Park Pond Watershed Management Plan (completed for the BCWMC in 2000) establishes priorities and provides guidelines for the cities of New Hope, Crystal, and Golden Valley, the BCWMC, and citizens for meeting water quality goals set for Bassett Creek Park Pond. Until a water quality monitoring program can be established to verify the existing water quality conditions and to monitor the impact of best management practices on the water quality of the Bassett Creek Park Pond, structural BMPs will not be implemented.

As discussed above, the City of New Hope has completed a channel erosion inventory for Bassett Creek within the Bassett Creek Park Pond Watershed. The City did not identify any stream erosion or sedimentation sites within New Hope. Therefore, no specific action by the City is necessary currently. Further information can be found in the Bassett Creek Pond Watershed Management Plan.

4.12 NORTHWOOD LAKE WATERSHED AND LAKE MANAGEMENT PLAN

The *Northwood Lake Watershed and Lake Management Plan* (completed for the BCWMC in 1996) establishes priorities and provides guidelines for the cities of New Hope and Plymouth, the BCWMC, and citizens for meeting water quality goals set for Northwood Lake. The water quality in Northwood Lake, located in the city of New Hope, has typically fallen below the BCWMC's water quality goals for a Level II management classification. The results of this study indicate that it may not be possible to meet Level II goals in Northwood Lake. Since the lake is classified by the DNR as a Class V wetland, it may be appropriate to change the management level of the lake to Level III.

As part of the Northwood Lake Plan's evaluation of water quality management alternatives, site-specific structural best management practices, in-lake improvements, and other BMPs were recommended in the 1996 report. These recommended structural best management practices are generally consistent with the water quality improvements identified by the City's 1996 LSWMP, and a portion of these improvements were constructed. In 2016, the City, in conjunction with the BCWMC, constructed a series of stormwater improvement projects that treats stormwater runoff from more than 110 acres of currently untreated urban land. The project included the installation of a variety of BMPs at two different locations adjacent to the lake, which maximize stormwater treatment (while minimizing impact to valuable City park space). In addition to sump manholes, the City constructed an underground stormwater reuse system to irrigate adjacent ball fields, where the overflow from this system directs runoff to rain gardens. It is estimated that the project, listed in Table 6.1 with the Major Drainage ID of BC-A2, helps to remove roughly 20 lbs. of phosphorus from Northwood Lake per year. The project was completed with funds from the Clean Water Fund (distributed by the Minnesota Board of Water and Soil Resources), and the MPCA, the BCWMC, and the City of New Hope.

SECTION 5 – WATER RESOURCES RELATED AGREEMENTS

5.1 SHINGLE CREEK WMC JOINT POWERS AGREEMENT (JPA)

In 1984, the nine cities with land in the Shingle Creek watershed (Brooklyn Center, Brooklyn Park, Crystal, Maple Grove, Minneapolis, New Hope, Osseo, Plymouth and Robbinsdale), entered into a Joint Powers Agreement (JPA) to form watershed management organizations charged with certain surface and groundwater management functions. The joint powers type of organization was selected because the cities believed it provided the best balance for the establishment of watershed-wide policies and strategies for meeting watershed management requirements while at the same time retaining the most flexibility and local input at the lowest cost. In 2006, the member cities adopted an amendment to the JPA that set an “assessment cap” for general fund purposes. A copy of the amended JPA can be found in Appendix B.

5.2 BASSETT CREEK WMC JOINT POWERS AGREEMENT (JPA)

In 1969, the Bassett Creek Flood Control Commission was formed by adoption of a Joint Powers Agreement between the nine communities in the Bassett Creek Watershed, including the City of New Hope. In accordance with provisions of the 1982 Metropolitan Surface Water Management Act, the Bassett Creek Flood Control Commission revised its Joint Powers Agreement and created the Bassett Creek Water Management Commission. Its mission is to control flooding and to maintain and enhance the quality of the surface and groundwater resources in the watershed. A copy of the revised JPA can be found in Appendix B.

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SECTION 6 – SYSTEM ASSESSMENT

The following section will summarize the assessment of the City's current stormwater management system. The assessment includes past, present, and future stormwater management issues identified by the City, the two watersheds with jurisdiction within the City, and other state and federal agencies.

6.1 STORMWATER MANAGEMENT ISSUES ADDRESSED BY THE CITY

The items presented in Table 6.1 were identified as water quantity or quality issues in the 1996 or 2008 LSWMPs or within the Watershed Management Plans of the two watersheds with jurisdiction within the City and have since been addressed by the City.

Table 6.1 - Stormwater Management Issues Addressed by the City

Major Drainage Area ID	Stormwater Issue	Issue Category	Corrective Action Taken	Year Completed
SC-A1	Untreated stormwater runoff discharging to Meadow Lake (SC-P1.1)	Water Quality	- Rerouted flows along the southern portion of the lake to the end of the lake furthest from the outlet to maximize inflow residence time.	2006
			- Installed 4 hydrodynamic separators to remove pollutants prior to discharging into Meadow Lake.	2006
SC-A1	Degraded water quality within Meadow Lake (SC-P1.1)	Water Quality, Aesthetic	- Excavated 0.6 acre-feet of sediment.	2006
SC-A2	Insufficient water quality treatment in District SC-A2 tributary to Upper Twin Lake	Water Quality	- Redirected flows from the low point in Xylon Avenue into the pond in Dorothy Mary Park (SC-P2.1) to achieve improved water quality.	1999
SC-A3	Water quality issues due to pond sedimentation and erosion	Water Quality	-Stabilized side slopes of the Village Golf Course Pond with rip-rap as they were eroding significantly.	2018
SC-A3	Insufficient water quality	Water Quality	Installed rain garden with a pre-treatment MH to provide sediment removal discharge into Village Golf Course Pond	2012
SC-A3	Local flooding along 55th Avenue North and in the St. Raphael's Church parking lot (Crystal)	Water Quantity	- Provide 1.8 acre-feet of flood storage volume in an Elm Grove Park dry pond (SC-P3.9) to store and attenuate peak flows adjacent to this intersection.	2006
			- Redirected the overflow from Elm Grove Park around the west side of St. Raphael's Church, avoiding the flood location in the east parking lot.	2006
			- Disconnected flows from the intersection of 55th and Quebec Avenues from the 33-inch pipe running through the flood location in the St. Raphael's Church east parking lot and redirect this trunk pipe to the west side of the Church.	2006
SC-A3	Insufficient water quality treatment in the Village Golf Course pond (SC-P3.2) tributary to Upper Twin Lake	Water Quality	- Excavated additional wet volume in the Village Golf Course pond (SC-P3.2) to provide greater water quality treatment.	1998
SC-A3	Local flooding at the intersection of 56th and Wisconsin Avenues North	Water Quantity	- Constructed stormwater pond adjacent to 56th and Wisconsin Avenues North – Hosterman Jr High School (SC-P3.15).	2001

Major Drainage Area ID	Stormwater Issue	Issue Category	Corrective Action Taken	Year Completed
SC-A4	Channel erosion in Subdistrict SC-A4.9	Water Quality, Erosion	- Additional rate control provided in constructed ponds SC-P4.3, SC-P4.9A and SC-P4.9B.	1998
SC-A4	Insufficient water quality treatment in District SC-A4 tributary to Upper Twin Lake	Water Quality	- Cleaned deposited sediments out of channel adjacent to railroad tracks.	1997
			- Water quality treatment provided in constructed ponds SC-P4.9A and SC-P4.9B.	1998
SC-A5	Insufficient water quality treatment in District SC-A5 tributary to Memory Lake Pond and Upper Twin Lake	Water Quality	- Excavated 1.5 acre-feet of wet ponding volume within the CCI pond (SC-P5.14) and redirected adjacent 33-inch trunk storm sewer into this pond to provide water quality treatment.	1996
SC-A5	Excessive discharge rates out of District SC-A5 discharging to Crystal	Water Quantity	Excavated 10.6 acre-feet of flood storage volume in the CCI pond (SC-P5.14).	1996
SC-A5	Local flooding at the intersection of 45th and Xylon Avenues	Water Quantity	- Rerouted storm sewer flows from 42nd and Winnetka Avenues away from the trunk system serving this intersection.	1999
SC-A6	Untreated stormwater runoff discharge into a DNR Protected Water (SC-P6.8)	Water Quality	- Excavated 1.4 acre-feet of wet ponding volume in the Pet Hospital Pond (SC-P6.7) and 0.6 acre-feet of wet ponding volume in the Collisys Site Pond (SC-P6.19) to provide water quality treatment prior to discharging to SC-P6.8.	2003
SC-A7	Untreated stormwater runoff discharging into Victory Park Pond, a DNR Protected Water (SC-P7.3)	Water Quality	- Excavated 2.7 acre-feet of wet ponding volume as part of the Victory Park Pond Improvements project (SC-P7.7) at the inlets from Boone Avenue.	2005
SC-A7	Local flooding at the intersection of Boone Avenue and East Research Center Road	Water Quantity	- Rerouted 24-inch Boone Avenue storm sewer flows from the south around this intersection to free pipe capacity at the intersection.	2005
			- Upsized the existing 36-inch trunk pipe to a 54-inch trunk pipe in East Research Center Road at the point at which the rerouted flows from Boone Avenue tie into this system.	2005
BC-A1	Local rear-yard flooding east of Independence Circle	Water Quantity	- Provided additional downstream pipe capacity via 27" storm sewer in Independence Circle and 36" storm sewer to the south.	2004
BC-A2	Untreated stormwater runoff discharging to Northwood Lake	Water Quality	- Installed pre-treatment structure (V2B1 system) prior to underground tank to remove sediment prior to entering underground storage tank used for irrigation. -Installed three rain gardens downstream of underground storage tank (for overflow/bypass runoff) to remove sediment prior to entering Northwood Lake (approx. 160,000 gallons of storage). -Installed wet pond on west end of lake to treat drainage prior to discharging into lake. Wet pond storage volume is roughly 0.7 ac-ft. -Installed several underground filtration chambers as part of street reconstruction projects to treat runoff from street prior to discharging into Northwood Lake. -Installed sump structures at various locations on and south and north side of the lake to remove sediment prior to entering Northwood Lake.	2015-2017

Major Drainage Area ID	Stormwater Issue	Issue Category	Corrective Action Taken	Year Completed
BC-A2	Local flooding location for properties adjacent to Hidden Valley Park pond (BC-P2.2A)	Water Quantity	- Provided an additional 3.2 acre-feet of flood storage within Hidden Valley Park pond (BC-P2.2B-D) *[BCWMC WMP ID# NB-37A, NB-38A].*	2003
BC-A2	Ravine erosion in subdistrict BC-A2.3, contributing excessive Total Suspended Solids load to Northwood Lake	Water Quality, Erosion	- Provided upstream rate control in the St. Josephs Church regional pond (BC-P2.3) to control discharge rates to this ravine.	2003
			- Constructed a 36-inch pipe low flow diversion parallel to the ravine to protect the channel.	2003
BC-A2	Insufficient water quality treatment of flows discharging to Hidden Valley Park pond (BC-P2.2A)	Water Quality	- Excavated an additional 1.4 acre-feet of wet volume within a series of stormwater wetland cells in Hidden Valley Park pond (BC-P2.2B-D) *[BCWMC WMP ID# NB-37A, NB-38A]* to provide water quality treatment for the residential area and grade school draining to this pond. In addition to the wet volume benefit, increased biological uptake by the wetland plantings is expected.	2002
BC-A2	Local flooding location for properties adjacent to Northwood Lake (BC-P2.5A)	Water Quantity	- Provided a total of 5.8 acre-feet of flood storage in the Gethsemane Cemetery pond (BC-P2.6A-B) [BCWMC WMP ID# NB-28A,B] to reduce the peak discharge rates to Northwood Lake (BC-P2.5A).	1999
			- Upsized the existing outlet for pond Northwood Lake (BC-P2.5A) to a 3'x7' box culvert.	1997
			- Upsized 36th Ave. N. pipe from 18" to 24" between Flag Ave. N. and Ensign Ave. N.	2002
BC-A2	Untreated stormwater runoff discharging to Northwood Lake (BC-P2.5A)	Water Quality	- Excavated 2.8 acre-feet of wet volume in pond BC-P2.3 (St. Joseph's Church) *[BCWMC WMP ID# NB-36A]* to provide water quality treatment prior to discharging to Northwood Lake (BC-P2.5A).	2005
			- Excavated 1.7 acre-feet of wet volume in the 2-cell pond BC-P2.6A-B *[BCWMC WMP ID# NB-28A-B]* and rerouted flows from Boone Avenue into pond to provide water quality treatment prior to discharging to Northwood Lake.	1999
			- Excavated 1.0 acre-feet of wet volume within a 3-cell pond BC-P2.5B *[BCWMC WMP ID#- NB-35A,B,C]* to provide water quality treatment prior to discharging to Northwood Lake.	1999
			- Excavated 1.0 acre-feet of wet volume within a 3-cell pond BC-P2.5B *[BCWMC WMP ID#- NB-35A,B,C]* to provide water quality treatment prior to discharging to Northwood Lake.	2003

Major Drainage Area ID	Stormwater Issue	Issue Category	Corrective Action Taken	Year Completed
BC-A3	Channel erosion between Northwood Lake (BC-P2.5A) and pond BC-P3.15A	Water Quality, Erosion	- Re-aligned channel between Northwood Lake (BC-P2.5A) and pond BC-P3.15A to improve stability.	1997
			- Provided a variety of plantings along the re-aligned channel to improve slope stability, provide a stream buffer, and improve wildlife habitat.	1997
			- Re-aligned channel graded with stable grade and gentle side slopes.	1997
BC-A3	Insufficient water quality treatment prior to discharging to Bassett Creek and Basset Creek Park Pond	Water Quality	- Constructed water quality treatment cell BC-P3.27 immediately southwest of the intersection of 36th Ave N and the railroad.	1996
BC-A3	Untreated stormwater runoff discharging to pond BC-P3.15A	Water Quality	- Constructed water quality treatment cell BC-P3.15B (wet volume = 0.2 acre-feet), immediately adjacent to the re-aligned channel between Northwood Lake (BC-P2.5A) and BC-P3.15A.	1999
			- Constructed water quality treatment cell BC-P3.15D (wet volume = 0.03 acre-feet), adjacent to the re-aligned channel between Northwood Lake (BC-P2.5A) and BC-P3.15.	2002
			- Rerouted untreated upstream flows from Northwood Parkway (east of Boone Avenue) into the excavated water quality treatment cell (0.4 acre-feet of wet volume) BC-P3.15E.	1999
BC-A3	Local flooding in 36th Ave N between Zealand Ave and Yukon Ave	Water Quantity	-Increased storm sewer pipe size to 21" and routed pipes along 36th Ave N rather than through development south of 36th Ave N.	2002

6.2 EXISTING STORMWATER MANAGEMENT ISSUES AND POSSIBLE CORRECTIVE ACTIONS

The following list of items presented in Table 6.2 represent current stormwater management issues or concerns as identified by the documents included in Section 4 of this plan. It is not the intent of this list to include all current stormwater management issues identified in the watershed documents in Section 4, only those issues with a possibly corrective action that directly affects the City. The implementation of the possible corrective actions will be addressed in the Implementation Section (Section 8).

Table 6.2 - Current Stormwater Management Issues and Possible Corrective Actions

Major Drainage Area ID	Stormwater Issue	Issue Category	Issue Identified By	Possible Corrective Actions
SC-A1	Degraded water quality within Meadow Lake (SC-P1.1)	Water Quality	City; SCWMWMC (WMP)	Conduct waterfowl management (shoreline plantings)
				Provide public education regarding stormwater quality including proper disposal of pet and yard waste
				Cooperate with the SCWMC to address the nutrient load allocation requirements
				All area redevelopment will be required to have site-wide management plans and strategies
SC-A1	Flooding issues adjacent to Bass Creek (SC-P1.4)	Water Quantity	City	Assist SCWMC with new flood data currently being developed by the DNR and FEMA
				Continue to work with all homeowners affected by flood elevations at low openings to prevent flooding issues
SC-A2	Insufficient water quality treatment	Water Quality	City	Look for opportunities in private and public development to construct water quality BMPs in the area
SC-A3	Insufficient trunk storm sewer capacity along Bass Lake Road	Water Quantity	City	Provide additional pipe capacity whenever able in coordination with City of Crystal
				As redevelopment occurs in this area, identify local issues and solve on a site-by-site basis
SC-A3	Possible flooding issues at Park Acres apartments north of the Parkview neighborhood	Water Quantity	City	As redevelopment occurs in this area, identify local issues and solve on a site-by-site basis
SC-A4	Flooding issues in the channel south of Angeline Drive	Water Quantity	City	Provide additional pipe and pond storage capacity upstream and downstream of channel when possible with redevelopment
				Provide additional storage with any redevelopment of city-owned site, east of channel
SC-A5	Local flooding at the 42nd Avenue low point at the rail road underpass	Water Quantity	City; SCWMWMC (WMP)	Provide additional downstream trunk pipe capacity according to the 42nd Avenue Flood Study
				Re-route local storm sewer flows at Winnetka, Quebec, Nevada, and Oregon away from the trunk system on 42nd Avenue
SC-A5	Insufficient water quality treatment in tributary to Memory Pond	Water Quality	City	Provide BMPs in Sunnyside Park
				Require any redevelopment in area to treat water on site before discharging to system
SC-A6	Untreated stormwater runoff discharge into Erickson Drive Wetland (SC-P6.6)	Water Quality	City	Monitor wet ponding volumes at the inlets adjacent to Erickson Drive
				Install BMPs on area projects
SC-A6	Untreated stormwater runoff discharge into Wetland (SC-P6.8)	Water Quality	City	Construct stormwater BMPs in any private or public projects in the drainage area whenever possible
SC-A7	Insufficient water quality treatment in tributary to Bass Creek	Water Quality	City	Construct stormwater BMPs in any private or public projects in the drainage area whenever possible
SC-ALL	Increased impervious surface area in the watershed has increased the duration and frequency of full bank conditions	Water Quantity	SCWMWMC (WMP)	Encourage reduction of impervious surface in all new development. Promote low impact development principles. Require site BMPs and storage whenever possible

Major Drainage Area ID	Stormwater Issue	Issue Category	Issue Identified By	Possible Corrective Actions
SC-ALL	Floodplain development standards should be continued or enhanced as development is completed	Water Quantity	SCWM WMC (WMP)	Continue efforts with Shingle Creek Watershed, DNR, and FEMA to re-map the area to determine more accurate flood elevations
				Continue enforcing current flood elevations in any redevelopment, and enforce any new information provided by the DNR and FEMA
SC-ALL	Water quality and stability of Shingle Creek should be improved	Water Quality	SCWM WMC (WMP)	Public and private projects and management strategies shall not increase the 100-year elevation of Shingle Creek, nor its tributaries or flood storage areas
				Any fill that impacts flood storage in wetlands or floodplains shall be mitigated when compensating storage within the same sub-reach or reach
				Enforce standards specifying buffer maintenance adjacent to tributaries to Shingle Creek
				Construct and encourage stream bank stabilization projects and habitat restoration projects
SC-ALL	Excessive chloride levels in Shingle Creek	Water Quality	SCWM WMC (WMP)	Calibrate salt spreaders annually
				Use the Road Weather Information Service (RWIS) and other sensors to improve salt application decisions
				Evaluate new technologies on an annual basis, such as prewetting and anti-icing as equipment needs replacement
				Investigate and adopt new salt products where feasible and cost effective
				Maintain good housekeeping practices associated with the handling of road salt to minimize the potential for wash-off
				Provide operator training
				Stockpile snow away from sensitive areas
				Track and report activities in annual NPDES report and provide copy to Commission
SC-ALL	Wetland protection and restoration	Water Quality	SCWM WMC (WMP)	Wetland mitigation should be provided within the same sub-watershed
				Prioritize wetlands and complete wetland functions and values assessment
				Enforce buffer strip requirements adjacent to wetlands and watercourses
				Identify wetland restoration possibilities and construct or encourage the construction of restoration projects
BC-A1	Insufficient water quality treatment	Water Quality	City	Explore the possibility of BMP installation in Jaycee Park (BC-A1.2)
				Any redevelopment in the sub-watershed will be required to treat runoff on site before entering the public system
BC-A2	Local flooding for properties adjacent to Hidden Valley Park (BC-P2.2A)	Water Quantity	City	Increase the downstream pipe capacity on Boone Avenue downstream
BC-A2	Improve water quality in Northwood Lake	Water Quality	City	Continue to maintain existing water treatment BMPs and install additional treatment when possible through private and public development
BC-A3	Untreated stormwater runoff discharging to ponds	Water Quality	City	Monitor and maintain the existing stormwater pre-treatment basins surrounding wetland BC-A3.15A

Major Drainage Area ID	Stormwater Issue	Issue Category	Issue Identified By	Possible Corrective Actions
BC-A4	Local flooding at Roslyn Court apartments and at Medicine Lake Road	Water Quantity	City	Install water storage where directed by the Medicine Lake Flooding Study
BC-ALL	Insufficient water quality treatment and degraded water quality in Medicine Lake, Northwood Lake, Bassett Creek, and Bassett Creek Park Pond	Water Quality	City; BCWMC (WMP)	Construct appropriate water quality BMPs in Jaycee Park (BC-A1.2)
				Work to reduce phosphorus loading into retention pond BC-A3.4
				Require wet detention or other techniques that provide equal degrees of treatment for all new and redeveloped properties
				Provide public education to residents and lake users on practices that reduce pollutants
				Enforce city ordinance regarding disposal of litter, yard and animal waste
				Promote stormwater retention and runoff volume reduction where feasible
				Encourage vegetated buffer strips between resident lawns and water bodies
				Excavate bottom sediment in priority ponds

6.3 WETLAND INVENTORY AND ASSESSMENT

From the 2040 Water Resources Management Policy Plan, the Met Council requires the City to include the following in the LSWMP Update:

> *All communities need to include a wetland management plan or a process and timeline to prepare a plan. At a minimum, the wetland management plan should incorporate a function and value assessment for wetlands. Other items to address in the plan include the pretreatment of stormwater prior to discharge into all wetland types, and the use of native vegetation as buffers for high quality wetlands. Buffers should be consistent with the functions and values identified in the plan.*

Both the SCWMC Plan and BCWMC Watershed Management Plan also require that the City complete a wetland inventory to classify wetlands and assess wetland functions and values.

The City of New Hope completed a Wetland Inventory and Management Plan in 1999, including a field inventory of all wetlands identified in the City and an evaluation of the functions and values of each wetland. To fully comply with the requirements outlined above, this document must be expanded to incorporate the necessary wetland management standards, including buffer standards. While outside of the scope of this LSWMP Update, it is the City's intent to revise this 1999 document to fully comply with local WMO and Metropolitan Council requirements. Details regarding implementation process necessary to revise the 1999 document are included in Section 8.4.

6.4 TMDLS

Four waterbodies within the City of New Hope are currently identified on the state list of Impaired Waters: Bass Creek, Meadow Lake, Northwood Lake, and the North Branch of Bassett Creek. In addition, seven other waterbodies in adjacent communities receiving discharge from New Hope are currently identified on the state list of Impaired Waters: Bassett Creek, Shingle Creek, Upper Twin

Lake, Middle Twin Lake, Lower Twin Lake, Ryan Lake, and Medicine Lake. The list of Impaired Waters is known as the 303(d) list from the applicable section of the Federal Clean Water Act, these waters are ones that do not currently meet their designated use due to the impact of a pollutant or stressor. If monitoring and assessment indicate that a waterbody is impaired by one or more pollutants, it is placed on the list. At some point a strategy would be developed that would lead to attainment of the applicable water quality standard. The process of developing this strategy is commonly known as the Total Maximum Daily Load (TMDL) process and involves the following phases:

1. Assessment and listing
2. TMDL study
3. Implementation plan development and implementation
4. Monitoring of the effectiveness of implementation efforts

Responsibility for implementing the requirements of the Federal Clean Water Act falls to the U.S. Environmental Protection Agency. In Minnesota, the EPA delegates much of the program responsibility to the Minnesota Pollution Control Agency (MPCA). Information on the MPCA program can be obtained at the following web address:

http://www.pca.state.mn.us/water/tmdl/index.html.

The following is an excerpt from the MPCA website describing the program and its need:

> *The Clean Water Act requires states to publish, every two years, an updated list of streams and lakes that are not meeting their designated uses because of excess pollutants. The list, known as the 303(d) list, is based on violations of water quality standards and is organized by river basin. Environmental organizations and citizen groups have sued the EPA because states have not made adequate progress to meet Section 303(d) requirements. The EPA has been sued for various reasons. Over the past 10 years, lawsuits have been filed in 42 states and the District of Columbia. Of those, 22 have been successful. There is currently no such lawsuit in Minnesota. However, beyond the federal requirements, there are many reasons for us to move forward with the development of TMDLs. Foremost is the need to clean up our rivers, streams and lakes to maximize their contributions to the state's economy and quality of life and to protect them as a resource for future generations.*
>
> *For each pollutant that causes a water body to fail to meet state water quality standards, the federal Clean Water Act requires the MPCA to conduct a TMDL study. A TMDL study identifies both point and nonpoint sources of each pollutant that fails to meet water quality standards. Water quality sampling and computer modeling determine how much each pollutant source must reduce its contribution to assure the water quality standard is met. Rivers and streams may have several TMDLs, each one determining the limit for a different pollutant.*

The absence of a waterbody from the 303(d) list does not necessarily mean the waterbody is meeting its designated uses. It may be that it has either not been sampled or there is not enough data to make an impairment determination.

The City of New Hope is within the implementation area of the Shingle Creek Chloride TMDL, the Twin and Ryan Lakes Excess Nutrients TMDL, the Upper Mississippi River Bacteria TMDL, which applies to both the North Branch of Bassett Creek and to Shingle Creek, and the Twin Cities Metropolitan Area Chloride TMDL. These studies have recently been completed and the Implementation Plans involve the City. Additional information regarding the Twin and Ryan Lakes Excess Nutrients TMDL, the Shingle Creek Chloride TMDL, the Upper Mississippi River Bacteria TMDL, and the Twin Cities Metropolitan Area Chloride TMDL studies is presented in the Sections 4.5, 4.7, 4.8, and 4.9 respectively. Implementation items are included in Sections 8.5, 8.6, 8.7, and 8.8 respectively.

Regarding the City's role in future TMDLs and TMDL Implementation Plans, the City recognizes that the responsibility for completion and implementation of the TMDL studies lies with the primary stakeholders contributing to the impairment. The City intends to cooperate with the WMOs in the development of the TMDL studies, acknowledging that the WMOs will take the lead on these studies. It is the intention of the City to fully implement the items/actions identified in future TMDL Implementation Plans, funding the implementation items/actions as necessary. Table 6.3 (see Section 6.4) identifies all the Impaired Waters identified within New Hope or in adjacent communities, and the status of the TMDL Study for each of these impairments.

Impaired waters within New Hope are identified on Figure 6, with additional information regarding these waters, as well as impaired waters close to New Hope receiving discharge from the City summarized in Table 6.3 below.

Table 6.3 - Impaired Waters in New Hope

Impaired Water	Year Listed	Affected use	Pollutant or Stressor	TMDL Target		Status of TMDL Study
				Start	Completion	
Bass Creek: Headwaters to Eagle Creek	2002	Aquatic life	Fish bioassessments	2007	2009	Underway
	2002	Aquatic Life	Chloride	2009	2015	Complete
Meadow Lake	2002	Aquatic recreation	N/EBI[1]	2007	2008	Complete
Northwood Lake	2004	Aquatic recreation	N/EBI[1]	2010	2025	Not yet started
North Branch of Basset Creek	2014	Aquatic recreation	*E. coli*	2008	2015	Complete

[1] Nutrient/Eutrophication Biological Indicators

6.5 NPDES PERMITTING PROCESS

The MPCA has designated the City of New Hope as an NPDES Phase II MS4 community (MN Rules 7090). New Hope's application for permit coverage was completed in 2006. The permit application outlined New Hope's Stormwater Pollution Prevention Plan (SWPPP) to address six minimum control measures:

1. Public education
2. Public involvement
3. Illicit discharge detection and elimination
4. Construction site runoff control
5. Post-construction runoff control
6. Pollution prevention in municipal operations

The City's SWPPP contains several best management practices within each of the listed control measures. These were identified using a self-evaluation and input process with City staff.

Many of the goals and policies discussed in this Local Surface Water Management Plan are directly related to requirements listed in the NPDES program. As a result, the Goals and Policies section of this plan repeatedly references items listed in the City's SWPPP. As the SWPPP is updated, the goals and policies related to the SWPPP and NPDES Permit will be updated in the LSWMP.

6.6 COMPARISON OF REGULATORY STANDARDS

Development and redevelopment within New Hope is subject to review and approval from one of the two watershed management organizations having jurisdiction in the City. Each watershed has established rules governing stormwater management and protection of natural resources. The table in Appendix B provides an overview of current watershed standards, as compared to the current City stormwater management standards. Where the City's standards are not consistent with watershed standards, recommended actions to bring the City's standards into consistency with the watershed are provided.

6.7 COMPARISON OF STORMWATER MANAGEMENT GOALS AND POLICIES

Like the comparison of regulatory standards described in Section 6.6, the comparison of stormwater management goals and policies identifies where the City needs to take action to implement or complement a goal or policy of the two watershed management organizations having jurisdiction in the City.

6.8 STORMWATER QUALITY MANAGEMENT DEDICATION REQUIREMENTS

Greater impervious coverage associated with new development, redevelopment, or site expansion activity places additional burdens on the storm drainage system by increasing the rate and volume of runoff. This, in turn, increases the amounts of pollutants exported from a development site. Existing or expanded storm drainage systems needed to serve the developed area provide an efficient means of delivering these higher pollutant loads to downstream receiving waters. Unless these pollutant loads are reduced, downstream receiving waters will be degraded over time because of development.

New Hope recognizes its responsibility to protect City water resources from adverse impacts due to increases in land use intensity caused by new development, redevelopment, and site expansion. To minimize the impacts of development on New Hope's valuable water resources, new development, redevelopment, and site expansion activity shall be subject to water quality mitigation requirements as outlined in Section 7.2.2 (Surface Water Quality).

In general, mitigation measures shall be required for future development, redevelopment, and site expansion activities that increase the existing impervious coverage of the site to achieve at least a 50 percent reduction in total phosphorus (TP) and an 80 percent reduction in total suspended solids (TSS) in the post-development condition. Regional, as well as on-site mitigation measures to reduce pollutant export can both be used to treat stormwater. This plan also includes provisions for collecting water quality cash dedications under certain situations and dedication of the revenue from such collections to help finance stormwater quality improvements. The following is intended to better define the conditions under which the City can collect a cash dedication, and how the cash dedication is calculated:

1. The City has the discretion of requiring water quality cash dedication for all or a portion of the pollutant removal targets for total phosphorus and total suspended solids. In exercising its discretion, the City will consider such factors as:

    - Topographic suitability of the site for water quality treatment features,
    - the size of the site,
    - the location of the site relative to sensitive resources or system components that require protection,
    - whether public improvements have been or will be made off-site for the expressed purpose of mitigating the water quality impacts of the development,
    - the extent to which the development has paid for mitigation already for the site, and
    - consistency with watershed management organization requirements.

2. Detailed guidance on how cash dedication amounts are to be calculated is provided in Appendix C.

3. The proceeds from the cash dedication will be ear-marked exclusively to finance water quality improvements in the City.

6.9 EROSION AND SEDIMENT CONTROL

New Hope's current erosion and sediment control program follows the guidance provided in the NPDES MS4 General Permit. As part of the permit requirements, the City's responsibilities include:

1. Develop an ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under law.
2. Requirements for construction site operators to control waste, such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality.
3. Develop requirements for construction site operators to implement appropriate erosion and sediment control best management practices.
4. Establish procedures for site plan review which incorporate consideration of potential water quality impacts.
5. Establish procedures for receipt and consideration of reports of noncompliance or other information on construction related issues submitted by the public.
6. Establish procedures for site inspection and enforcement of control measures.

The City of New Hope has erosion and sediment control standards for all projects which will be reviewed and revised as necessary as the City updates its official controls after approval of this Local Surface Water Management Plan. Existing City Code was reviewed to identify official controls related erosion and sediment control. This review found that standards for erosion and sediment control included in Section 4-3(j) and 13-5(e). A summary of these Code Sections (*in italics*) is as follows:

- **Permit Requirement** – *No person may grade, fill, excavate, store or dispose of soil and earth materials or perform any other land-disturbing or land-filling activity without first obtaining a permit as set forth in this section.*

- **Application Required** – *Application. The application for a permit must include the following items:*
  a. *Application.*
  b. Site map and grading plan.
  c. Interim erosion and sediment control plan.
  d. Final erosion and sediment control plan, where required.
  e. Soil engineering report, where required.
  f. Engineering geology report, where required.
  g. Work schedule.
  h. Application fees.
  i. Performance bond or other acceptable security (see subsection 4-3(j)(18)).
  j. Any supplementary material required by the issuing authority.

- **Decision on a Permit** – *The city shall review all documents submitted pursuant to this section, and, if necessary, request additional data, clarification of submitted data or correction of defective submissions within ten working days after the date of submission. The city shall notify applicant of the decision on the permit within 40 days of submission by the applicant, which submission shall include action by any affected permitting authority having jurisdiction.*

- **Notice** – *Applicant shall be notified of the city's decision on the application within three working days of the decision.*

- **Permit Duration** – *Permits issued under this chapter shall be valid for the period during which the proposed land-disturbing or filling activities and soil storage takes place or is scheduled to take place, whichever is shorter. Permittee shall commence permitted activities within 60 days of the scheduled commencement date for grading or the permittee shall resubmit all required application forms, maps, plans, schedules and security to the city except where an item to be resubmitted is waived by the city.*

- **Implementation of Permits** –

  a. *The city shall review all reports submitted by permittee. The city may require permittee to modify the grading plan, interim or final plans, and maintenance methods and schedules. The city shall notify the permittee in writing of the requirement and specify a reasonable period within which permittee must comply. All modifications are subject to city's approval.*

  b. *The city may inspect the site:*
     1. *Upon receipt of a report by permittee under provisions subsections 4-3(j)(27) a and b.*
     2. *To verify completion of modifications required under subsection 4-3(j)(28) a.*
     3. *During and following any rainfall.*
     4. *At any other time, at the city's discretion.*

  c. *Upon completion of the rough grading work and at the final completion of the work, the city may require the following reports and drawings and supplements thereto:*
     1. *An as-graded grading plan*
     2. *A soil grading report*
     3. *A geologic grading report*

- **Suspension or Revocation of Permit** – *The city shall first have resorted to the procedures set forth in this section before any other work enforcement procedure set forth in this chapter.*

  a. *The city shall suspend the permit and issue a stop work order, and permittee shall cease all work on the work site, except work necessary to remedy the cause of the suspension, upon notification of such suspension when:*
     1. *The city determines that the permit was issued in error or based on incorrect information supplied, or in violation of any ordinance or regulation or the provisions of this Code.*
     2. *Permittee fails to submit reports when required under subsections 4-3(j)(27) and (28).*
     3. *Inspection by the city under subsection 4-3(j)(28) b reveals that the work or work site:*
        i. *Is not in compliance with the conditions set forth in subsection 4-3(j)(26), or*
        ii. *I s not in conformity with the grading plan, interim or final plan as approved or as modified under subsection 4-3(j)(28)a, or*
        iii. *Is not in compliance with an order to modify under subsection 4-3(j)(28) a.*
     4. *Permittee fails to comply with an order to modify within the time limits imposed by the city (see subsection 4-3(j)(28)a).*

  b. *The city shall revoke the permit and issue a stop work order, and permittee shall cease work if permittee fails or refuses to cease work, as required under subsection 4-3(j)(30)a above, after suspension of the permit and receipt of a stop work order and notification thereof.*

  c. *The city shall reinstate a suspended permit upon permittee's correction of the cause of the suspension.*

d. The city shall not reinstate a revoked permit unless and until the permittee has corrected all conditions which resulted in the revocation.

- **Fines and Penalties** – *Any person, firm, corporation or agency acting as principal agent, employee or otherwise, who fails to comply with the provisions of this Code shall be guilty of a misdemeanor and upon conviction thereof shall be punishable by a fine of not more than $700.00, or by imprisonment in jail for not more than 90 days, or by both, for each separate offense. Each day any violation of this chapter shall continue shall constitute a separate offense.*

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SECTION 7 – GOALS AND POLICIES

7.1 GENERAL

This section outlines the City's goals and policies for stormwater management. The goals identified in this section represent broad stormwater management categories aimed at addressing the purposes of stormwater management planning identified in Minnesota State Statute 103B.201, as follows:

1. Protect, preserve, and use natural surface and groundwater storage and retention systems;
2. Minimize public capital expenditures needed to correct flooding and water quality problems;
3. Identify and plan for means to effectively protect and improve surface and groundwater quality;
4. Establish more uniform local policies and official controls for surface and groundwater management;
5. Prevent erosion of soil into surface water systems;
6. Promote groundwater recharge;
7. Protect and enhance fish and wildlife habitat and water recreational facilities; and
8. Secure the other benefits associated with the proper management of surface and ground water.

The specific policies under each goal will guide implementation of this Local Surface Water Management Plan to achieve the stormwater management goal and provide consistency between the City's policies and the two watersheds with jurisdiction within the City (Shingle Creek Watershed Management Commission and Bassett Creek Watershed Management Commission).

Project Review

CITY OF NEW HOPE

Project review is required by the City of New Hope for any non single-family residential project that adds impervious area to a site.

Project review is required for a structural pavement maintenance improvement such as a mill and overlay, reclamation, or pavement removal and replacement improvement. Incorporating Best Management Practices (BMP's) is required as directed by the City Engineer.

Project review is not required for non-structural improvements such as a seal coat improvement.

SHINGLE CREEK WATERSHED MANAGEMENT COMMISSION (SCWMC)

Within the **Shingle Creek Watershed Management Commission (SCWMC)** jurisdictional area (see Figure 3.1 for WMC boundaries), project review is required for the following:

<u>For all land uses except detached single-family residential:</u>

- Where a development or re-development project is greater than or equal to five acres in area, the Commission must provide project review.
    - For these projects, development must meet the Commission's rate, quality and volume requirements for the entire site.

- Where a development or re-development is greater than ½ acre but less than one acre in size, City project review is required.
    - For development projects, the first inch of runoff from all impervious surface must be abstracted.
    - For re-development projects, permanent water quality BMPs must be incorporated.
- Where a development or re-development is greater than or equal to one acre but less than five acres in size, City project review is required.
    - For development projects, the Commission rate, quality and volume requirements must be met for the entire site.
    - For re-development projects that disturb less than 50% of the site, the Commission rate, quality and volume requirements for the disturbed area must be met.
    - For re-development projects that disturb greater than or equal to 50% of the site, the Commission rate, quality and volume requirements for the entire site must be met.

<u>For detached, single-family residential land uses:</u>

- Where a development is greater than or equal to one acre but less than fifteen acres in size, City project review is required.
    - For development projects, the Commission rate, quality and volume requirements must be met for the entire site.
    - For re-development projects that disturb less than 50% of the site, the Commission rate, quality and volume requirements for the disturbed area must be met.
    - For re-development projects that disturb greater than or equal to 50% of the site, the Commission rate, quality and volume requirements for the entire site must be met.
- Where a development or re-development is greater than or equal to fifteen acres in size, Commission project review is required.
    - For these projects, the Commission rate, quality and volume requirements must be met for the entire site.

BASSETT CREEK WATERSHED MANAGEMENT COMMISSION (BCWMC)

Within the **Bassett Creek Management Commission (BCWMC)** jurisdictional area (see Figure 3.1 for WMC boundaries), project review by the BCWMC is **not** required for the following:

- Proposed projects that result in less than 200 cubic yards of cut and fill and less than 10,000 square feet of land disturbance.
- Maintenance of projects (seal coating and pavement overlays, sediment and debris removal from crossings and stormwater ponds, etc.) that do not trigger land disturbance criteria.
- Single family home sites that are exempt from Erosion and Sediment Control review. Single family home sites must comply with the other requirements and be reviewed by the BCWMC if they meet the review triggers.
- Proposed linear projects that result in less than one acre of land disturbance.

Within the **Bassett Creek Watershed Management Commission (BCWMC)** jurisdictional area, project review by the BCWMC, following review and approval by the City, is required for the following:

- Proposed, non-linear or linear projects containing one or more acres of new and/or fully reconstructed impervious surfaces must meet the Commission's rate requirements.

- New development, redevelopment and linear projects must meet the BCWMC performance goals for water quality (linear project requirements revised May 2017). Proposed linear projects disturbing less than one acre will be reviewed by the cities. Linear projects disturbing one or more acres shall be submitted to the BCWMC for review. Proposed linear projects disturbing more than five acres will require action at the BCWMC meeting. For more details, see current BCWMC regulations (revised May 2017).

7.2 SURFACE WATER MANAGEMENT GOALS AND POLICIES

The following goals and policies reflect current City policy and the City's current SWPPP, as well as additional goals and policies necessary for consistency with the goals and policies of local watershed management organization, state agencies, and other applicable regulatory agencies:

7.2.1 WATER QUANTITY AND FLOOD CONTROL

Goal 1: Control the rate of stormwater runoff from development and redevelopment development to minimize the impact on downstream structures and water resources.

Policy 1.1: Peak stormwater runoff rates from new development, redevelopment, linear projects, and site expansion projects may not exceed the existing rates for the 2-year, 10-year, and 100-year storm events; or the capacity of downstream conveyance facilities; or contribute to downstream flooding.

Policy 1.2: Review and update City Ordinance as necessary to ensure consistency with the City's rate control standard, as identified in Policy 1.1.

Policy 1.3: Continue to enforce the 10-year rainfall event as the minimum criteria for all stormwater conveyance facility designs.

Policy 1.4: In addition to the 10-year storm sewer design criteria for local systems, the capacity to convey the 100-year ponded outflow rate from stormwater ponds directly connected to the system should also be provided.

Policy 1.5: Existing stormwater conveyance facilities that do not provide a 10-year level of service, plus upstream 100-year ponded outflows should be upgraded, where practical.

Policy 1.6: Base all drainage system analyses and designs on proposed full-development land use patterns.

Policy 1.7: Where other rate control standards are specified by the SCWMC or BCWMC, the City will help to enforce SCWMC or BCWMC standards.

Goal 2: Provide a reasonable level of stormwater flood protection within the City to minimize property damage and limit public capital and maintenance expenditures due to stormwater flooding.

Policy 2.1: Review and update as necessary the City's Floodplain Overlay District Ordinance as required by FEMA and the Minnesota DNR (MnDNR), or as needed for compliance with watershed standards, to ensure adequate protection for structures and eligibility for flood insurance programs.

Policy 2.2: Structure low floor elevations hydraulically connected stormwater basins or conveyance facilities shall be a minimum of 2 feet above the established 100-year High Water Level of the adjacent basin or facility.

Policy 2.3: Establish and maintain overflow routes from stormwater basins and low areas to provide relief during storm conditions which exceed design conditions, where possible.

Policy 2.4: Properly design, operate, and maintain the surface water system. Strictly enforce City ordinances regulating floodplain development.

Policy 2.5: Preserve existing storage capacities of City and jurisdictional watershed flood control and trunk facilities.

Policy 2.6: Prohibit encroachment that will reduce the storage capacity of floodplains, unless approved by the jurisdictional watershed and floodplain mitigation (compensatory storage) and/or channel modification is provided.

Policy 2.7: Permanently protect surface water impoundments and drainage systems by requiring the dedication of land and/or protective easements as required.

Policy 2.8: Continue emergency flood response program for the City to minimize damage to property.

Policy 2.9: Regulate land development within the Floodplain Overlay District to ensure that floodplain capacity and flood elevations are not adversely impacted by development, and that new structures are protected from damage.

Policy 2.10: Where other floodplain standards are specified by the SCWMC or BCWMC, the City will help to enforce SCWMC or BCWMC standards.

7.2.2 SURFACE WATER QUALITY

Goal 3: Improve the quality of stormwater runoff discharging to the City's lakes, streams, and wetlands.

Policy 3.1: Review and update City Ordinance as necessary to ensure that water quality treatment standards are consistent with the City's stormwater management program.

Policy 3.2: The City is committed to reviewing new development, redevelopment, and site expansion projects in the context of non-degradation and will require BMPs necessary to maintain or reduce existing total phosphorus, total suspended solids, and stormwater runoff volume loads discharging to public waters and watercourses, where feasible.

Policy 3.3: The City will require SCWMC and BCWMC standards for water quality:

- In areas of the City where SCWMC has jurisdiction, stormwater must be treated prior to discharge to remove 60% of total phosphorus (TP) and 85% of total suspended solids (TSS) using either permanent sedimentation and water quality ponds consistent with NURP design standards. A permanent wet pool with dead storage of at least the runoff from a 2.5-inch storm event must be provided.

- In areas of the City where BCWMC has jurisdiction, to demonstrate compliance with the BCWMC performance goals, the MIDS calculator must be used to demonstrate volume reduction, total phosphorus removals, and total suspended solids removal at the site. For more details, refer to Section 6.3.1 of the BCWMC *Requirements for Improvements and Development Proposals*.

Policy 3.4: If the City determines that on-site water quality treatment for new development, redevelopment, or site expansion projects is not feasible due to site or efficiency limitations, the developer will be responsible for a water quality cash dedication to fund water quality

improvements near the proposed site. Details regarding the cash dedication cost calculation are provided in Section 6.8 and Appendix C.

Policy 3.5: Adopt the waterbody classifications and subsequent water quality management standards developed by the SCWMC and BCWMC. The City will work to meet appropriate water quality goals as outlined by the two watershed management organizations having jurisdiction in the City.

Policy 3.6: Consistent with City Ordinance, Section 8-32, the City prohibits the application of fertilizer which contains any amount of phosphorus or other compound containing phosphorus, such as phosphate, except when an exemption included in Section 8-32 can be claimed.

Policy 3.7: Prohibit the discharge of foreign material into the stormwater system. Such material shall include, but not be limited to, waste oil, paint, grass clippings, leaves, and ecologically harmful chemicals. This policy is consistent with the MS4 Program and is outlined in the City's SWPPP.

Policy 3.8: Prohibit the discharge of sanitary sewage or non-permitted industrial wastes onto land or into any watercourse discharging into Bassett Creek.

Policy 3.9: Continue training public works staff related to a spill clean-up response focusing on containing, neutralizing, and properly disposing of spilled materials to prevent discharge of spilled materials into the storm sewer system. This policy is consistent with the MS4 Program and is outlined in the City's SWPPP.

Policy 3.10: Continue to address the proper application of pesticides, herbicides, and fertilizers through internal City staff training and public education. This policy is consistent with the MS4 Program and is outlined in the City's SWPPP.

Policy 3.11: Continue street sweeping and maintenance of detention ponds and pond inlet and outlet structures according to the schedule outlined in the City's SWPPP.

Policy 3.12: Assess the need to develop a specific spill containment cleanup plan for the City.

Policy 3.13: In accordance with the City's SWPPP, the City will assess the need to develop other necessary management programs, as necessary.

Policy 3.14: Illicit connections and discharges to the City of New Hope's Municipal Separate Storm Sewer System (MS4) are prohibited. Refer to the City of New Hope's City Code Chapter 5, Section 9 – Illicit Discharge or Connection to Stormwater System, for more information.

Policy 3:15: Per the MS4 Permit, new development and redevelopment projects with land disturbance greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, within the permittee's jurisdictions and that discharge to the City's MS4, must follow the Post-Construction Stormwater Management requirements as outlined in the MS4 Permit.

Goal 4: Address the target pollutants identified in TMDL plans to improve the quality of impaired waters.

Policy 4.1: Amend City practices and stormwater management standards as necessary to implement the pollutant load reductions identified in TMDL plans for impaired waters.

Policy 4.2: Use the findings of TMDL plans to guide the stormwater management strategies for development and redevelopment projects tributary to impaired waters.

Policy 4.3: The City recognizes that the responsibility for completion and implementation of the TMDL studies lies with the primary stakeholders contributing to the impairment. The City intends to cooperate with local WMOs in the development of the TMDL studies, acknowledging that the WMOs will take the lead on these studies. It is the intention of the City to fully implement the items/actions identified in future TMDL Implementation Plans, funding the implementation items/actions as necessary.

7.2.3 GROUNDWATER QUALITY AND RUNOFF VOLUME MANAGEMENT

Goal 5: Reduce pollutant loads to waterbodies and encourage groundwater recharge and protection by reducing the volume of stormwater runoff from development, redevelopment, and street reconstruction projects.

Policy 5.1: The City shall require that volume management standards are met in the City, based on SCWMC and BCWMC standards.

- In areas that SCWMC has jurisdiction, the volume management standard is that abstraction must be provided onsite in the amount equivalent to one inch of runoff from impervious surface for at least 48 hours. This standard applies to development projects on more than one acre requiring project review, or redevelopment projects disturbing less than 50 percent of the site must meet the requirement only for the disturbed area. If infiltration is infeasible due to site constraints, other SCWMC standards for filtration must be followed.

- In areas that BCWMC has jurisdiction, the following applies:

    - For new developments creating more than one acres of new impervious surface, 1.1 inches of runoff from impervious surface must be retained on site.

    - For redevelopments creating more than one acre of new and/or fully reconstructed impervious surface, 1.1 inches of runoff from new and/or fully reconstructed impervious must be retained on site.

    - For linear projects creating one or more acres of new or fully redeveloped impervious surface, 1.1 inches of runoff from net new or fully reconstructed impervious surface must be retained on site. For more details, refer to Section 5.0 of the BCWMC *Requirements for Improvements and Development Proposals.*

In some cases, infiltration will be infeasible due to soil conditions, depth to groundwater table, and groundwater protection concerns. Other methods of runoff volume abstraction that achieve a level of benefit equivalent to the infiltration standards could also be used, pending City approval.

Policy 5.2: Review and update as necessary current City ordinances to incorporate new WMC volume management standards.

Policy 5.3: Where possible, development and redevelopment should limit the addition of impervious surfaces where feasible when constructing or reconstructing streets and other hard surfaces.

Policy 5.4: Encourage soil amendment procedures following mass grading activities, including deep ripping of soils to a depth of 18-inches, to re-establish the pre-development infiltrative capacity of the soil.

Policy 5.5: The City will help to enforce other SCWMC and BCWMC standards where applicable.

7.2.4 RECREATION, FISH AND WILDLIFE HABITAT, AND SHORELAND MANAGEMENT

Goal 6: To protect and enhance opportunities for water recreation.

Policy 6.1: Coordinate efforts with state, county and neighboring municipalities to enhance water-based recreation to the extent practical.

Goal 7: To protect and enhance fish and water related wildlife habitats.

Policy 7.1: Preserve protected waters and wetlands that provide habitat for fish spawning and wildlife to the extent feasible.

Policy 7.2: Coordinate efforts to protect threatened and endangered species with the Minnesota Department of Natural Resources.

Policy 7.3: Coordinate efforts to protect areas of significant natural communities with the Minnesota Department of Natural Resources.

Policy 7.4: Management practices shall promote and encourage the use of streams and lakes as wildlife corridors.

Policy 7.5: Continue to address the proper application of pesticides, herbicides, and fertilizers through internal City staff training and public education. This policy is consistent with the City's SWPPP, Minimum Control Measure 1 (Public Education and Outreach).

Goal 8: Conserve and protect shoreland areas within the City.

Policy 8.1: Regulate land development within the Shoreland Permit Overlay District to minimize impacts as specified in City Code.

Policy 8.2: Review and update as necessary the City's current Shoreland Permit Overlay District Ordinance to verify the compatibility with the ordinance standards as set forth by the Minnesota Department of Natural Resources.

Policy 8.3: Management efforts will seek to protect non-disturbed shoreland areas and restore disturbed shorelines and streambanks to their natural state, where feasible.

Policy 8.4: Management efforts will seek to preserve streambank and lakeshore vegetation during and after construction projects and create buffer zones along shorelines where natural vegetation is maintained.

Policy 8.5: The City will help to enforce SCWMC and BCWMC buffer regulation, as well as other shoreland standards outlined by these two agencies.

7.2.5 WETLAND AND LAKE MANAGEMENT

Goal 9: Protect and preserve wetlands to maintain or improve their function and value.

Policy 9.1: Continue to administer WCA responsibilities within the City to ensure no net loss of wetland functions and values.

Policy 9.2: Update the City's latest Wetland Inventory and Management Plan to fully comply with local WMO WMPs and Metropolitan Council requirements identified in the 2040 Water Resources Management Policy Plan.

Policy 9.3: Review and update as necessary City wetland ordinances and standards in accordance with the local watershed authorities' management plans.

Policy 9.4: Wetland alterations, where allowed, shall be based on no net loss. If the impact of an alteration is unavoidable, it should be mitigated through replacement, wetland restoration, and/or improvements to existing wetland function and value.

Policy 9.5: Coordinate wetland regulation with review agencies - the City, the State, the U.S. Army Corps of Engineers, and the local watershed authorities.

Policy 9.6: Require that, prior to development activities or public projects, a wetland delineation must be completed, including a field delineation and report detailing the findings of the delineation.

Policy 9.7: Identify and implement opportunities to enhance the functions and values of degraded wetlands within the City, as a part of park projects, infrastructure projects, or other projects where practical.

Policy 9.8: Encourage natural buffer zones around ponds, wetlands and streams. Buffer areas should not be mowed or fertilized, except that harvesting of vegetation may be performed to reduce nutrient inputs and provide weed control. For development and redevelopment projects that require a review by the SCWMC, a buffer is required adjacent to a protected water, wetland, or stream. In areas of the City that require review from the BCWMC, Appendix B of the BCWMC *Requirements for Improvements and Development Proposals* should be referenced for buffer requirements.

Policy 9.9: Require that new development or redevelopment runoff be pre-treated prior to discharge to wetlands.

Policy 9.10: When feasible, the City will annually inspect wetlands classified as “preserve” for terrestrial and emergent aquatic invasive vegetation, and attempt to control or treat invasive species.

Policy 9.11: Where other standards applicable to wetlands are specified by the SCWMC or BCWMC, the City will require SCWMC or BCWMC standards be followed. For more details, refer to Sections 2.9.1 and 4.7.1 of the BCWMC *Requirements for Improvements and Development Proposals.*

Goal 10: Manage lakes and creeks to improve water quality.

Policy 10.1: Continue to work with the BCWMC to implement 1996 Northwood Lake Watershed and Lake Management Plan.

Policy 10.2: Continue to work with the SCWMC to achieve the water quality goals for Meadow Lake as identified in the 2006 Water Quality Plan, and coordinate implementation efforts for the future TMDL plan and implementation strategy to improve the water quality of Meadow Lake.

Policy 10.3: Upon approval of a TMDL Implementation Plan for the impaired waters identified in Table 6.3, the City will review whether modifications to the City’s SWPPP are warranted to address the TMDL Waste Load Allocation (WLA) identified by the TMDL process. The SWPPP update process to address TMDL WLAs and implementation activities follows the direction of the City’s MS4 Permit. The City intends to coordinate TMDL implementation efforts with outside agencies to address the items identified in the TMDL Implementation Plans.

7.2.6 EROSION AND SEDIMENT CONTROL, MONITORING, AND MAINTENANCE

Goal 11: Prevent sediment from construction sites from entering the City's surface water resources.

Policy 11.1: Periodically review the Erosion and Sediment Control Ordinance and make revisions as necessary to meet the requirements of the applicable regulatory authorities.

Policy 11.2: Require that, for construction activities that result in land disturbance of equal to or greater than one acre, landowners obtain an NPDES General Permit for Construction Stormwater Management from the MPCA. Ensure that erosion control plans are created and implemented.

Policy 11.3: Require that erosion and sediment control conform to the standard practices contained in the Minnesota Stormwater Manual (most recent update).

Policy 11.4: Encourage preservation of natural vegetation to the maximum extent practical.

Policy 11.5: Require that the time that construction areas remain exposed is minimized by phasing construction activities and establishing temporary and permanent vegetation.

Policy 11.6: Require that sediment discharge is prevented by protecting existing storm drain inlets and conveyance systems, stockpiling soil in protected areas and constructing permanent sediment forebays upstream of basins and water bodies.

Policy 11.7: Require that stormwater inlets are designed to prevent debris from entering the conveyance system and impeding the flow path.

Policy 11.8: Continue to enforce the existing Erosion and Sediment Control Ordinance on all construction sites with a development agreement and an appropriate bond. Require erosion and sediment control on other sites experiencing erosion problems. Minimize runoff velocities and maximize natural cover to reduce erosion.

Policy 11.9: Continue the City's inspection program for construction sites to ensure compliance with the City's Erosion and Sediment Control regulations. In areas undergoing construction activities, the cost of sweeping sediment from the streets generated by development shall be borne by the developer and/or owner. The program shall include inspection following installation, severe rain storms, and prior to seeding deadlines.

Policy 11.10: Where other erosion or sediment control standards are specified by the SCWMC or BCWMC, the City will help to enforce SCWMC or BCWMC standards.

Goal 12: Maintain the function and effectiveness of stormwater management structures through monitoring and maintenance.

Policy 12.1: Inspect and monitor the construction and installation of all new stormwater facilities and require that such facilities be surveyed to create as-built drawings.

Policy 12.2: Require developers to provide a minimum one-year guarantee that stormwater management facilities are properly installed, maintained and functioning.

Policy 12.3: Inspect and maintain City stormwater facilities, with minimum inspection and maintenance responsibilities as follows:

1. Maintenance activities include but are not limited to removal of floating material, clearing of blocked inlets, pipes or structures, street sweeping to remove debris and litter, repairing eroded ground, reestablishing ground cover and dredging sediment from ponds.

2. The City will inspect stormwater management facilities after major precipitation events and in response to complaints or input from the public or other government agencies. Certain facilities will be inspected more frequently as warranted.
3. The City will keep records of inspections and maintenance including dates, observations and actions taken.
4. For stormwater retention basins receiving direct runoff from an area that has been disturbed for development, the City will complete visual inspection and determination of storage volume at least annually for five years from the end of construction. For other basins, visual inspection will be completed annually, and determination of storage volume will be completed at least every five years. If the basin is designed with a forebay, the storage volume will be determined for the forebay only, unless it is found to be reduced by 50 percent. When basin storage volume has been reduced by 50 percent, within one year of inspection the sediment will be removed from the basin to restore the original volume, and vegetation will be restored in disturbed areas.
5. The City will inspect grit chambers, sump catch basins, sump manholes, inlet and outlet structures, culverts and other stormwater management facilities that are not functioning as designed according to the maintenance frequencies in the City's SWPPP.

Policy 12.4: Provide stream maintenance and repairs when the maintenance and repair work is primarily aesthetic in nature.

Policy 12.5: Where other stormwater management structure monitoring and maintenance standards are specified by the SCWMC or BCWMC, the City will require SCWMC or BCWMC standards be followed. For more details, refer to Section B.2 of the BCWMC *Requirements for Improvements and Development Proposals.*

7.2.7 PUBLIC PARTICIPATION, COORDINATION AND EDUCATION

Goal 13: Coordinate the implementation of stormwater management efforts with watershed management organizations, adjacent municipalities, Hennepin County, and residents.

Policy 13.1: Coordinate on-going public education and outreach programs with the local watersheds, and other governmental agencies designed to bring awareness to the City's stormwater management goals and policies. This policy is consistent with goals addressed in the City's SWPPP, Minimum Control Measure 1 (Public Education and Outreach) and Minimum Control Measure 2 (Public Participation and Involvement).

Policy 13.2: Continue the training program for all City staff, especially Public Works, regarding threats to water quality and how best to address these problems. This policy is consistent with goals addressed in the City's SWPPP, Minimum Control Measure 6 (Pollution Prevention/Good Housekeeping for Municipal Operations).

Policy 13.3: Communicate with the BCWMC and SCWMC regarding the implementation, schedule, and funding of the stormwater management improvements identified in the LSWMP and Watershed Management Plans.

Policy 13.4: Work with adjacent municipalities and the watersheds in planning and implementing mutually beneficial regional stormwater management improvements.

Policy 13.5: Continue the City's public education program for landowners to promote the use of BMPs to improve and protect surface water and groundwater quality. The City encourages residents and landowners to practice environmental friendly lawn care and to encourage the use of native plantings or natural landscapes, where practical. This policy is consistent with goals addressed in the City's SWPPP, Minimum Control Measure 6 (Pollution Prevention/Good Housekeeping for Municipal Operations).

Policy 13.6: Promote citizen and volunteer efforts to protect, restore and enhance local water and natural resources. This policy is consistent with goals addressed in the City's SWPPP, Minimum Control Measure 2 (Public Participation and Involvement).

Policy 13.7: Utilize available mediums (newsletter, public meetings, TV broadcasts, the City's Comprehensive Plan, interpretive elements at parks or open spaces) to inform the City's residents about the value of local water resources, the effects of stormwater runoff, and opportunities for stewardship of water and natural resources. This policy is consistent with goals addressed in the City's SWPPP, Minimum Control Measure 1 (Public Education and Outreach).

Policy 13.8: Work with local watershed management organizations, Hennepin County, and others where appropriate and as resources are available to participate in resource management plans or studies that benefit water and natural resources.

Policy 13.9: Coordinate proposed development and redevelopment project reviews with the local watershed management organizations.

7.2.8 FUNDING

Goal 14: Secure adequate funding to support implementation of the local surface water management plan (LSWMP).

Policy 14.1: Fund LSWMP implementation items with revenue from the City's stormwater utility. Periodically review stormwater utility rates to determine if current revenues are adequate.

Policy 14.2: Seek grant funds or other resources to assist with special projects or implementation of LSWMP goals and policies.

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SECTION 8 – IMPLEMENTATION

8.1 GENERAL

The City has developed an implementation program based on the information developed in earlier sections of this Local Surface Water Management Plan. This program reflects the needs and concerns of many stakeholders including the City Council, City Staff, citizens, and local watershed management organizations.

This section summarizes the implementation items identified in Sections 6 and 7 of this LSWMP, prioritizes these items, and presents a preliminary cost estimate to complete the items based on the best available information. It should be noted that estimated costs presented in the section are preliminary only and are presented for long-term budget planning purposes.

8.2 RECOMMENDED ACTIONS FOR OFFICIAL CONTROLS

Official controls (codes and ordinances) are necessary tools supporting implementation of this Local Surface Water Management Plan. Over time, existing ordinances must be updated to remain consistent with stormwater management goals, policies, and practices. To address the need to review and update City Code, many of the stated goals and policies in this plan specifically reference City ordinances that exist or need to be created. Also, the City's MS4 permit includes a summary of ordinances required to comply with NPDES requirements and the ordinances are reflected in the City's SWPPP. Table 8.1 identifies City ordinances related to surface water management and includes any recommendations for updates to these ordinances as identified in Section 7.

Table 8.1 - Surface Water Management Related Ordinances

Section	Description	Review and Update Recommendation
Section 4-3(j)	Grading, erosion and sediment control regulations	Review and update per City Policy 11.1
Section 4-25	Shoreland Permit Overlay District	Review and update per City Policy 1.2, 2.1, 8.1, and 8.2
Section 4-26	Floodplain District	Review and update per City Policy 2.1
Section 4-35	Administration – Site Plan Review	Review and update per City Policy 11.1
Section 5-1(d)	Discharge of Surface Waters into Sanitary Sewer	No update is necessary
Section 5-3(e), Section 14-50(11)	Stormwater Utility	Review and update per City Policy 14.1
Section 5-7	Drainage	No update is necessary
Section 6-10	Dispersion of Percolating Waters	No update is necessary
Section 8-32	Lawn Fertilizer Application Control	No update is necessary
Section 13-5 (e,f)	Erosion and Sediment Control, Drainage	Review and update per City Policy 1.2, 2.1, 3.1, 5.2, and 11.1
Section 14-70	Watershed Management Tax District	No update is necessary

8.3 SYSTEM IMPROVEMENT PROJECTS

From the assessment of the City's current stormwater management program comes the identification of existing stormwater management issues as presented in Table 6.2. Table 8.2 identifies the system improvement projects from Table 6.2 the City considers to be high or medium priority projects. The system improvements identified in the table below range from those being driven by increased regulatory requirements (e.g. TMDLs), to others driven by the functionality of the City's regional stormwater management system.

Table 8.2 – Past and Future Priority System Improvement Projects

Major Drainage Area ID	Project	Description	Comments	Complete or Future Improvement
SC-A3	Wincrest Pond (SC-P3.4) improvements	Reroute Winnetka Avenue storm sewer and excavate additional wet ponding volume to provide greater treatment efficiency.	• 25% project funding included in 2008 Shingle Creek WMC CIP • Identified as an implementation item in the Twin and Ryan Lakes Nutrient TMDL	Complete
SC-A5	45th Avenue pond (SC-P5.12) improvements	Expand flood storage, excavate wet volume, and restrict discharge out of the 45th Avenue pond (SC-P5.12).	• 25% project funding included in 2009 Shingle Creek WMC CIP • Identified as an implementation item in the Twin and Ryan Lakes Nutrient TMDL	Complete
SC-A5	45th and Xylon Avenues storm sewer improvements	Provide additional trunk storm sewer capacity from intersection to 45th Avenue pond (SC-P5.12).	• Additional storm sewer capacity to be completed with future improvements within the Civic Center Park Area (SC-A5.1)	Complete
SC-A5	42nd Avenue railroad underpass improvements	Reroute local storm sewer flows along 42nd Avenues at Nevada Avenue and Oregon Avenue away from the trunk system serving this intersection.	N/A	Future
SC-A5	Civic Center Park improvements (SC-A5.7)	Provide additional storm sewer capacity and treatment during park and pool improvements.	N/A	Future
SC-A6	Basin SC-P6.8 water quality improvements	Construct ponds SC-P6.14 and SC-P6.16 to provide water quality treatment prior to discharging into Basin SC-P6.8.	N/A	Future
SC-A7	Boone Avenue and East Research Center Road storm sewer improvements	Upsize existing 36" storm sewer to provide additional trunk pipe capacity immediately downstream of the intersection.	N/A	Complete
BC-A2	Basin BC-P2.5A water quality improvements	Construct pond BC-P2.5C to provide water quality treatment prior to discharging into Basin BC-P2.5A.	N/A	Complete

BC-A3	Basin BC-P3.15A water quality improvements	Construct pond BC-P3.15C to provide water quality treatment prior to discharging into Basin BC-P3.15A.	N/A	Complete
BC-A4	Terra Linda Drive emergency overflow improvements	Lower/widen the existing overland overflow from Terra Linda Drive.	N/A	Complete
BC-A4	Medicine Lake Road/Rosayln Court Flood Improvements	Construction additional storm water capacity.	Improvements would be part of the overall DeCola Ponds Flood Mitigation Projects in Golden Valley	Future

8.4 WETLAND INVENTORY AND ASSESSMENT

Implementation Priority Item: The Metropolitan Council's 2040 Water Resources Management Policy Plan, the Shingle Creek Watershed Management Plan, and the Bassett Creek Watershed Management Plan all require that New Hope complete a Wetland Management Plan, including a functions and values assessment for wetlands within the City.

Measures Necessary to Implement the Priority Item: The City of New Hope completed a Wetland Inventory and Management Plan in 1999, including a field inventory of all wetlands identified in the City and an evaluation of the functions and values of each wetland. Based on this information, the City intends to complete the required Wetland Management Plan (including a functions and values assessment), consistent with the directive of City Policy 9.2. In addition, the following items will be included in this document to comply with the requirements of the agencies identified above:

- Require that wetland mitigation should be provided within the same subwatershed.
- Establish buffer strip requirements adjacent to wetlands and watercourses.
- Identify wetland restoration possibilities and construct or encourage the construction of restoration projects.
- Within the SCWMC wetland functions and values must be assessed at the time any action is taken that may require a delineation of that wetland.

8.5 TWIN AND RYAN LAKES TMDL

Implementation Priority Item: The Twin and Ryan Lakes Nutrient TMDL and Implementation Plan was approved by the US EPA in November 2007. TMDL study addresses a nutrient impairment in the Twin Lake chain of lakes.

Measures and Timeline Necessary to Implement the Priority Item: Waste Load and Load Allocations to meet State standards indicate that nutrient load reductions ranging from 0-76 percent would be required to consistently meet standards under average precipitation conditions. Each stakeholder agreed that nutrient loading must be reduced, but that as fully developed cities, options for retrofitting BMPs were limited. Each stakeholder agreed to evaluate and include nutrient-reduction BMPs in street and highway projects, and to consider opportunities such as redevelopment to add or upsize BMPs.

The TMDL study and this Implementation Plan identified specific improvements to reduce external and internal phosphorus load. Currently, the improvements to the Wincrest Pond (SC-P3.4) and 45th Avenue Pond (SC-P5.12) are included as projects to be completed within the first five years. These and others are "short term" projects that could be accomplished in coming 10-20 years. However, these projects alone will not be sufficient to achieve water quality goals in these lakes. An essential "long-term" component of this Implementation Plan is to routinely retrofit BMPs in this fully developed

watershed as redevelopment or new construction provide opportunities. The long-term components impacting the City of New Hope include, increased infiltration requirements for new and redevelopment projects, wildlife management, street sweeping, and road salt reductions.

8.6 SHINGLE CREEK TMDL

Implementation Priority Item: The Shingle Creek Chloride TMDL has been approved by the MPCA and an Implementation Plan has been completed. The TMDL analysis determined that the majority of chloride in the Shingle Creek watershed is derived from nonpoint sources including road deicing, commercial and industrial deicing, and fertilizer application, with the primary source being road salt and salt substitutes applied to the dense network of local roads and county and state highways in the watershed.

The activities and BMPs identified in the implementation plan are the result of a series of stakeholder working meetings led by the Shingle Creek Watershed Management Commission. Representatives from cities (including New Hope), MnDOT, Hennepin County, and regulatory agencies met multiple times to discuss the TMDL requirements, BMPs and technologies available to address chloride, public safety, and the feasibility of implementing the activity (from the Shingle Creek Chloride TMDL Implementation Plan) As a result of these meetings, New Hope identified their current efforts and proposed BMPs/activities for managing the City's winter road salt supply within five categories:

1. Product Application Equipment and Decisions
2. Product Stockpiles
3. Operator Training
4. Clean-up/Snow Stockpiling
5. Ongoing Research into Salt Alternatives

Measures and Timeline Necessary to Implement the Priority Item: The TMDL concluded that an overall 71% reduction in chloride load to Shingle Creek must be achieved to meet State chloride concentration standards. The Implementation Plan for this TMDL includes tables identifying the City's current activities and proposed BMPs or activities related to road deicing. The information from these tables is as follows:

Table 8.3 - Shingle Creek Chloride TMDL Implementation Measures

BMP Category	New Hope Current Activities	New Hope Proposed BMPs/Activities
Product Application Equipment and Decisions	3:1 salt/sand	Annually calibration of spreaders
	Computerized sanders	
	Truck temperature sensors – air and	Continued research
	Turnover = 12 years	
Product Stockpiles	Enclosed building on impervious surface, detention pond	At maximum extent practicable
Operator Training	Operators use their own judgment using truck sensors	Provide training
		Annually calibration of
Clean-up/Snow Stockpiling	Plow as soon as possible	Evaluate annually
	Minimal hauling	
	Sweep streets in spring and fall	
Ongoing Research into Salt Alternatives	Investigate new products, equipment, and methods	Use Clear Lane product in 2008-09

In addition to the Proposed BMPs/Activities identified in Table 8.3, New Hope is committed to tracking and reporting these activities in their annual NPDES report. A copy of this report will be provided to the Shingle Creek Watershed Management Commission.

8.7 UPPER MISSISSIPPI RIVER BACTERIA TMDL

Implementation Priority Item: The Upper Mississippi Bacteria TMDL and Protection Plan was approved by the US EPA in November 2014. TMDL study addresses an *E. coli.* impairment in the Upper Mississippi River.

Measures and Timeline Necessary to Implement the Priority Item: Water quality analysis and bacteria load studies indicate that bacteria load reductions ranging from 69 percent from the Shingle Creek reach would be required to consistently meet standards under average precipitation conditions.

The TMDL study identified specific implementation strategies which could reduce bacteria loading to Shingle Creek, including source control, education, maintenance, and treatment BMPs. These strategies and their effectiveness are further discussed in the TMDL, and will be further outlined in a more detailed Implementation Plan. The City will continue to implement BMPs in accordance with their MS4 permit.

8.8 TWIN CITIES METROPOLITAN AREA CHLORIDE TMDL

Implementation Priority Item: The Twin Cities Metropolitan Area Chloride TMDL Study was approved by the US EPA in June 2016. TMDL study addresses Chloride impairment in the Twin Cities Metro area.

Measures and Timeline Necessary to Implement the Priority Item: The TMDL study identified broad implementation strategies which could reduce chloride loading to water resources, but because there are no safe and cost-effective alternatives to using salt for de-icing, a performance based approach is recommended. Under this approach, focus is directed toward the implementation of BMPs, rather than meeting a specific reduction number. A sample of the recommended BMPs include: calibrating equipment, using liquid instead of dry salt, developing a Winter Maintenance Policy/Plan, providing training, storing salt indoors on an impermeable pad, and using anti-ice measures before weather events. In accordance with the performance-based approach, the City will continue to implement BMPs per their MS4 permit.

8.9 NPDES IMPLEMENTATION

As discussed in Section 6.5, the City of New Hope is designated as an NPDES Phase II MS4 community. As part of New Hope's application to obtain permit coverage, the City's Stormwater Pollution Prevention Plan (SWPPP) identifies many specific implementation items related to surface water management in New Hope. While it is not the City's intent to reproduce the specific implementation items from their SWPPP in this LSWMP (a copy of the current SWPPP can be obtained by contacting City Hall), the specific items identified in the SWPPP can be lumped into implementation categories, including:

- Education and outreach to City staff and residents
- Ordinance reviews and updates
- System inspection and maintenance activities
- Plan review procedures and standards
- Reporting procedures
- System improvements

Many of the specific implementation items identified in the SWPPP are consistent with other implementation activities included in this section of the LSWMP.

8.10 OPERATION AND MAINTENANCE

New Hope's existing stormwater management system represents a major investment for the City of New Hope. The ongoing maintenance of this existing stormwater management system is critical to protecting this valuable investment. Generally, stormwater system maintenance is funded by the City's stormwater utility. The City's stormwater system maintenance responsibilities include the following:

- Street sweeping
- Cleaning of catch basins
- Repair of catch basins and manholes
- Assessing pipe condition (typically by televising)
- Inspection of storm sewer inlet and outlet structures
- Excavation of accumulated sediments from ponds
- Structural treatment devices, including sump manholes and grit chambers

The City should continue to evaluate if the existing stormwater utility rates can adequately fund the maintenance of the existing stormwater management system. Table 8.5 provides the City's stormwater system maintenance schedule.

Table 8.4 - Surface Water System Maintenance Schedule

BMP	Maintenance Schedule
Catch basins	Inspected every 5 years, cleaned out as needed
Trunk storm sewer	Jetted on a scheduled rotation
Stormwater ponds	Inspected every 5 years, cleaned out as needed
Stormwater pond inlets/outlets	Inspected every 5 years, cleaned as needed
Structural treatment devices, including sump manholes and grit chambers	Inspected annually, cleaned as needed
Street sweeping	Twice annually

8.11 IMPLEMENTATION ACTIVITIES

Based on the assessment of the City's current stormwater management program (Section 6) and various implementation activities identified in the City's surface water management policies section (Section 7), a list of system improvement projects and activities has been identified (see Table 8.5). This table presents a summary of recommended high and medium-priority surface water management projects and activities. The budget amounts included in this table should be considered planning-level cost estimates, with more specific cost estimates to be determined as the project or activity approaches. If the activity corresponds to a specific subwatershed, that subwatershed is noted in parenthesis at the end of the activity description.

For capital improvement projects, the City will continue to rely on its very detailed five-year capital improvement planning process to schedule and plan for funding these projects. This planning process is updated annually by City staff and reviewed and approved annually by the City Council. The items listed in Table 8.5 will be used as a reference for particular projects and activities specific to stormwater and water resources management to be included in the capital improvement planning process.

Table 8.5 - Implementation Program

Activity #	Activity	Activity Description	Proposed Start	Proposed Funding Source	Budgeted Cost
1	Review and Update City Code	Review and update the ordinances as necessary per Table 8.1 to comply with current stormwater management standards and rules.	2018	Stormwater utility	$10,000
2	Winpark Drive Improvements	Install storm water treatment and repair aging infrastructure on Winpark Drive (BC-A3)	2019	Stormwater utility, BCWMC grants	$420,000
3	City Center Improvements	Expand flood storage and provide water quality treatment at the City Center park (SC-P5.6)	2019	Stormwater utility, SCWMC grants	$400,000
4	Northwood East area improvements	Install water quality treatment in the Northwoods East area (BC-A3)	2020	Stormwater utility, BCWMC grants	$190,000
5	Public Works addition	Install water quality treatment and water storage capacity (SC-P7.7)	2021	Stormwater utility, SCWMC grants	$500,000
6	42nd Avenue flood improvements	Provide additional trunk storm sewer capacity to address flooding at the CP rail underpass	2021	Stormwater utility, SCWMC grants	$100,000
7	Medicine Lake Road flood improvements	Provide additional water storage capacity near the Roslyn Court condominiums to address long term flooding problems at DeCola Ponds	2021	Stormwater utility, BCWMC grants	$100,000
8	Lions Park area improvements	Install water quality treatment in the Lions Park area (BC-A3)	2021	Stormwater utility, BCWMC grants	$120,000
9	Liberty Park area improvements	Install water quality treatment in the Liberty Park area (SC-A1)	2022	Stormwater utility, SCWMC grants	$140,000
10	Northwood Central	Install water quality treatment in the Northwood Central	2023	Stormwater utility, BCWMC	$150,000

	neighborhood improvements	neighborhood (BC-A2)		grants	
11	Jaycee Park neighborhood improvements	Install water quality treatment and water storage capacity in the Jaycee Park neighborhood	2024	Stormwater utility, BCWMC grants	$120,000
12	St. Raphael neighborhood improvements	Install water quality treatment in the St. Raphael neighborhood.	2025	Stormwater utility, SCWMC grants	$130,000
13	Northwood South improvements	Install water quality treatment in the Northwood South neighborhood.	2026	Stormwater utility, BCWMC grants	$360,000
14	Boone Avenue storm sewer improvements	Repair and upsize storm sewer on Boone Avenue north of Bass Lake Road.	2027	Stormwater utility, SCWMC grants	$150,000
15	Shingle Creek TMDL Implementation	Annual calibration of spreaders and road deicing product application and equipment research.	Ongoing	Stormwater utility, SCWMC grants, MPCA TMDL Implementation grants	$2,000 annually
16	Public Education and Outreach Program	Coordinate public education and outreach programs with outside agencies to provide stormwater management education opportunities for City residents.	Ongoing	Stormwater utility, SCWMC grants, BCWMC grants	$2,500 annually
17	City Staff Training	City staff training in the operation, maintenance and inspection of stormwater facilities.	Ongoing	Stormwater utility	$3,500 annually
18	General Inspection and Maintenance Program	General inspection and maintenance of the City's stormwater management system, including: • Bi-annual street sweeping • Inspection and maintenance of ditches, creeks, and storm sewer • Inspection and maintenance of stormwater basins and outfalls • Inspection and maintenance of structural pollution control devices	Ongoing	Stormwater utility	$1,100,000 annually
19	MS4 Permit Annual Reporting	Annual reporting for MS4 permit compliance.	Ongoing	Stormwater utility	$10,000 annually
20	Update Wetland Inventory and Management Plan	Revise the City's 1999 Wetland Inventory and Management Plan to meet requirements for wetlands in the 2008 planning cycle.	TBD	Stormwater utility, SCWMC grants, BCWMC grants	$14,000
21	Northwood Lake water quality improvements	Implement water quality improvement projects based on results of the Northwood Lake TMDL Study (pending) in cooperation with the BCWMC.	TBD when TMDL is complete	Stormwater utility, BCWMC grants, MPCA TMDL Implementation grants	TBD

8.12 POTENTIAL FUNDING

Implementation of the proposed studies, programs, and improvements identified in this section impacts City's budget. To quantify this effect, a review of the ability of the City to fund these studies, programs, and improvements is required.

Below is a listing of various sources of revenue that the City will attempt to utilize:

- Existing storm water utility.
- Grant and partnership monies possibly secured from various agencies.
- General fund.
- Watershed Management Tax Districts as provided for in Minnesota Statutes Chapter 103B.245 for those projects being completed by or in cooperation with the SCWMC or BCWMC.
- Special assessments for local improvements performed under authority of Minnesota Statutes Chapter 429.
- Other sources potentially including tax increment financing, tax abatement, state aid, and others.

The City's stormwater utility fund is the primary source for the studies, programs, and improvements projects identified in this LSWMP. The City reviews the funding adequacy of their stormwater utility in conjunction with their five-year Capital Improvement Program update every two years. The next update to the City's Capital Improvement Program will occur in 2019.

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SECTION 9 – ADMINISTRATION

9.1 REVIEW AND ADOPTION PROCESS

Review and adoption of this Local Surface Water Management Plan will follow the procedure outlined in Minnesota Statutes 103B.235:

> After consideration but before adoption by the governing body, each local government unit shall submit its water management plan to the watershed management organization for review for consistency with the watershed plan adopted pursuant to section 103B.231.The organization shall approve or disapprove the local plan or parts of the plan. The organization shall approve or disapprove the local plan or parts of the plan. The organization shall have 60 days to complete its review; provided, however, that the watershed management organization shall, as part of its review, consider the comments submitted to it by the Metropolitan Council pursuant to subdivision 3a. If the organization fails to complete its review within the prescribed period, the local plan shall be deemed approved unless an extension is agreed to by the local unit.
>
> Concurrently with its submission of its Local Surface Water Management Plan to the watershed management organization as provided in subdivision 3, each local unit of government shall submit tis water management plan to the Metropolitan Council for review and comment by the by the council. The council shall have 45 days to review and comment upon the local plan or parts of the plan with respect to consistency with the council's comprehensive development guide for the metropolitan area. The council's 45-day review period shall run concurrently with the 60-day review period by the watershed management organization and shall send a copy of its comments to the local government unit. If the Metropolitan Council fails to complete its review and make comments to the watershed management organization within the 45-day period, the watershed management organization shall complete its review as provided in subdivision 3.
>
> After approval of the local plan by the organization, the local government unit shall adopt and implement its plan within 120 days and shall amend its official controls accordingly within 180 days.

9.2 PLAN AMENDMENTS AND FUTURE UPDATES

This Local Surface Water Management Plan will be incorporated into the City's 2018 Comprehensive Plan update and will be applicable until 2028, at which time an updated plan will be required. Periodic plan amendments may be required to incorporate major changes in local practices. Particularly, changes to the two applicable Watershed Management Plans may require updates to this plan. Plan amendments will be incorporated by following the review and adoption steps outlined above.
The City views changes in local practice (e.g. modifications to the City's minimum engineering standards, improved stormwater system maintenance techniques, etc.) that do not impact the standards or policies identified in this plan as only minor changes in local practice, and thus would not necessitate a plan amendment or update.

Appendix A
Figures

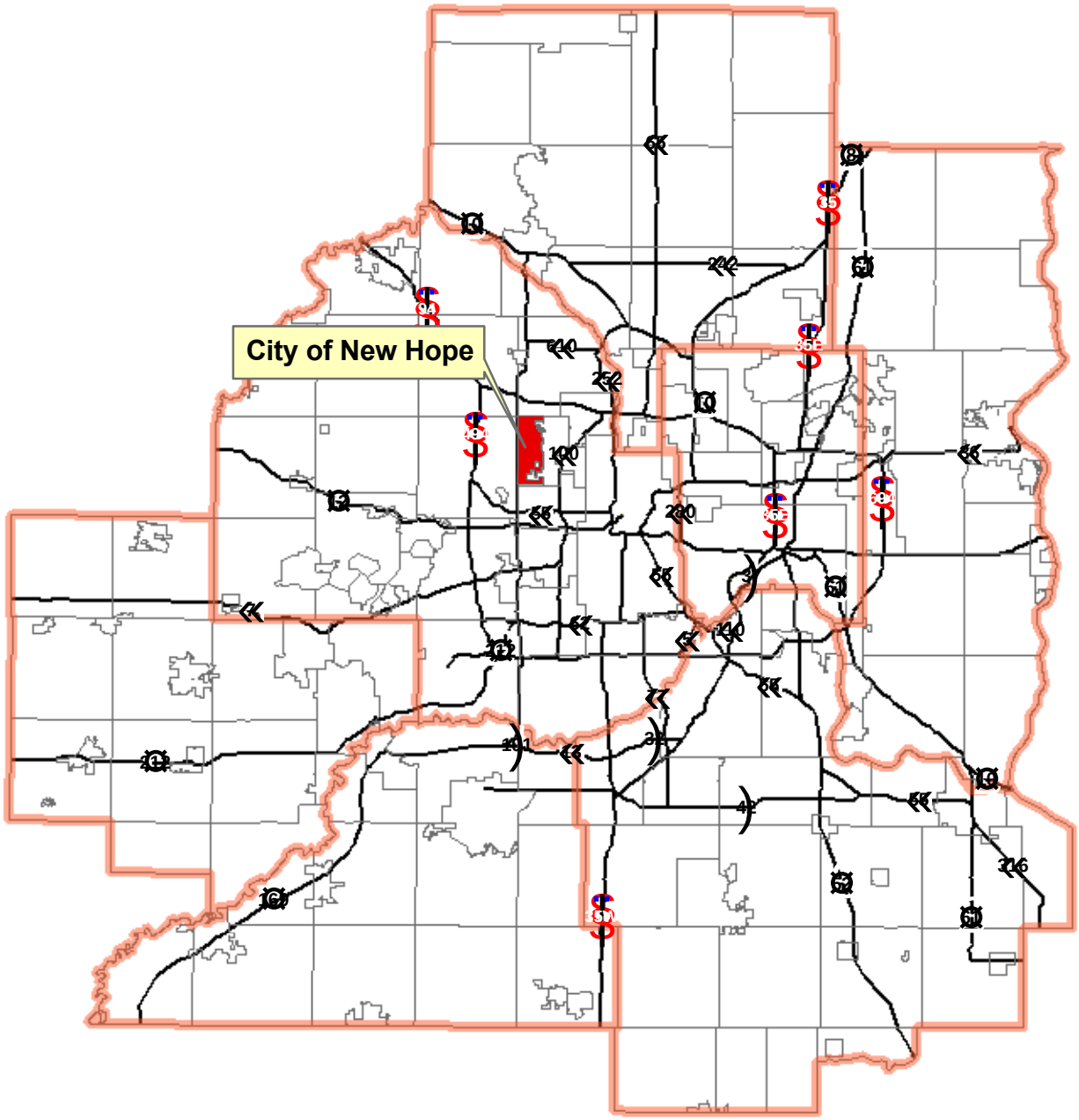

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Figure 1

Location Map

July 2018

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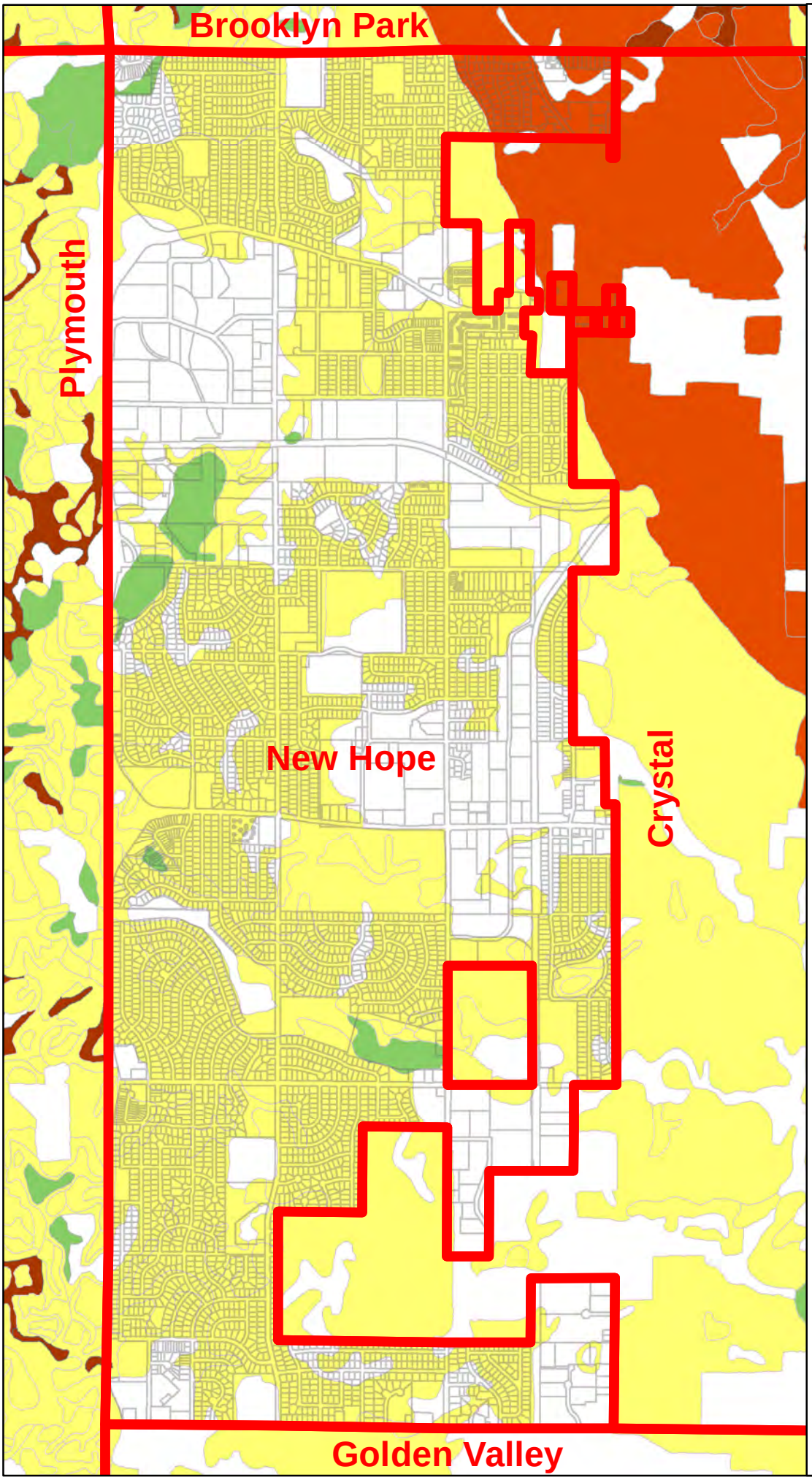

Hydrologic Soil Group Classification Map

City of New Hope

Figure 2

Legend

- City Limits
- Parcels

Hydrologic Soil Group

- A
- A/D
- B
- B/D
- C
- C/D
- D

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July 2018
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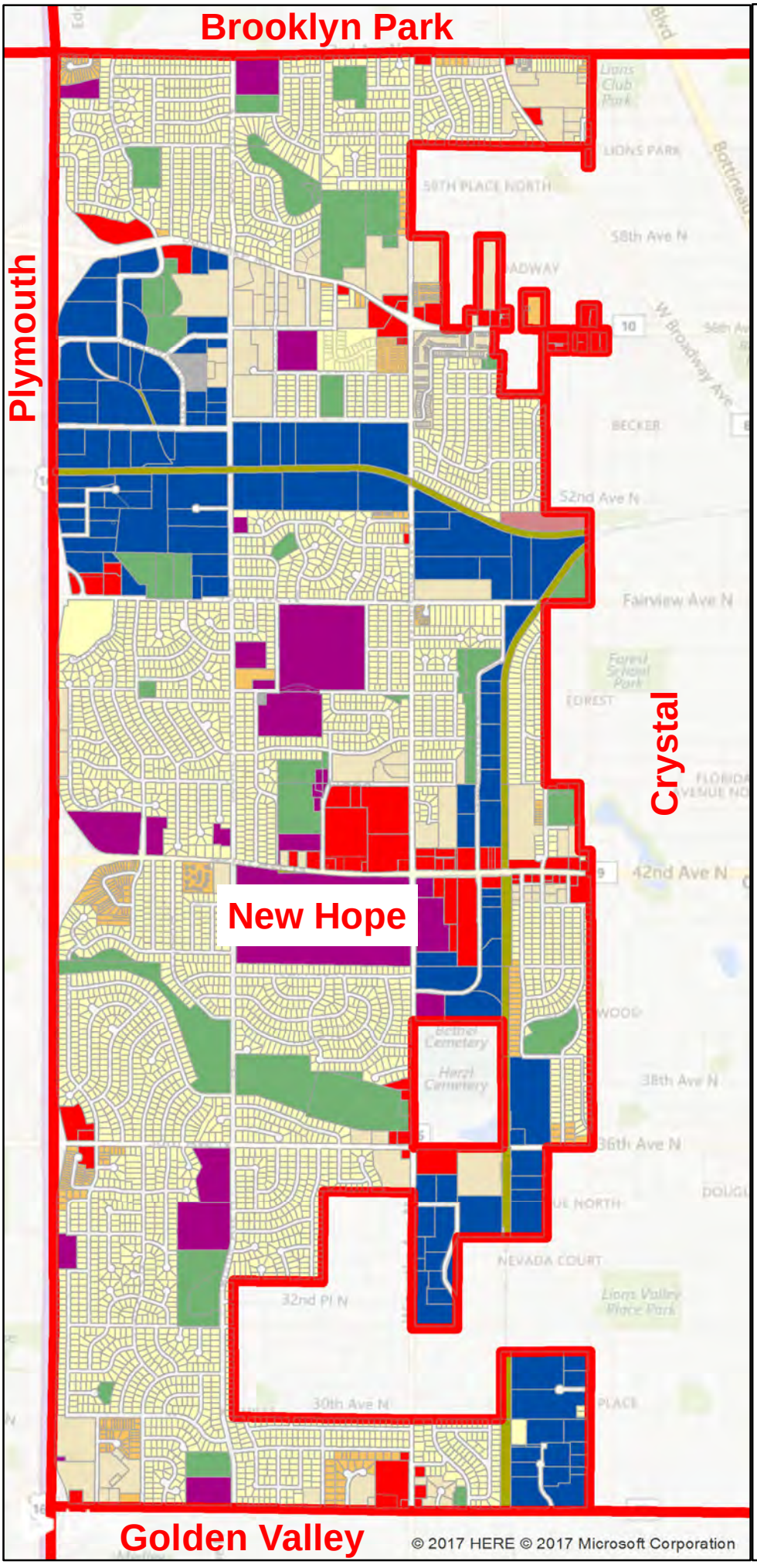

2040 Comprehensive Plan Existing Land Use Map

City of New Hope

Figure 3

Legend

- Parcels
- City Limits

Existing Land Use

- Commercial
- High Density Residential
- Industrial
- Low Density Residential
- Medium Density Residential
- Parks & Recreation
- Public & Semipublic
- Rural Residential
- Utility
- Vacant

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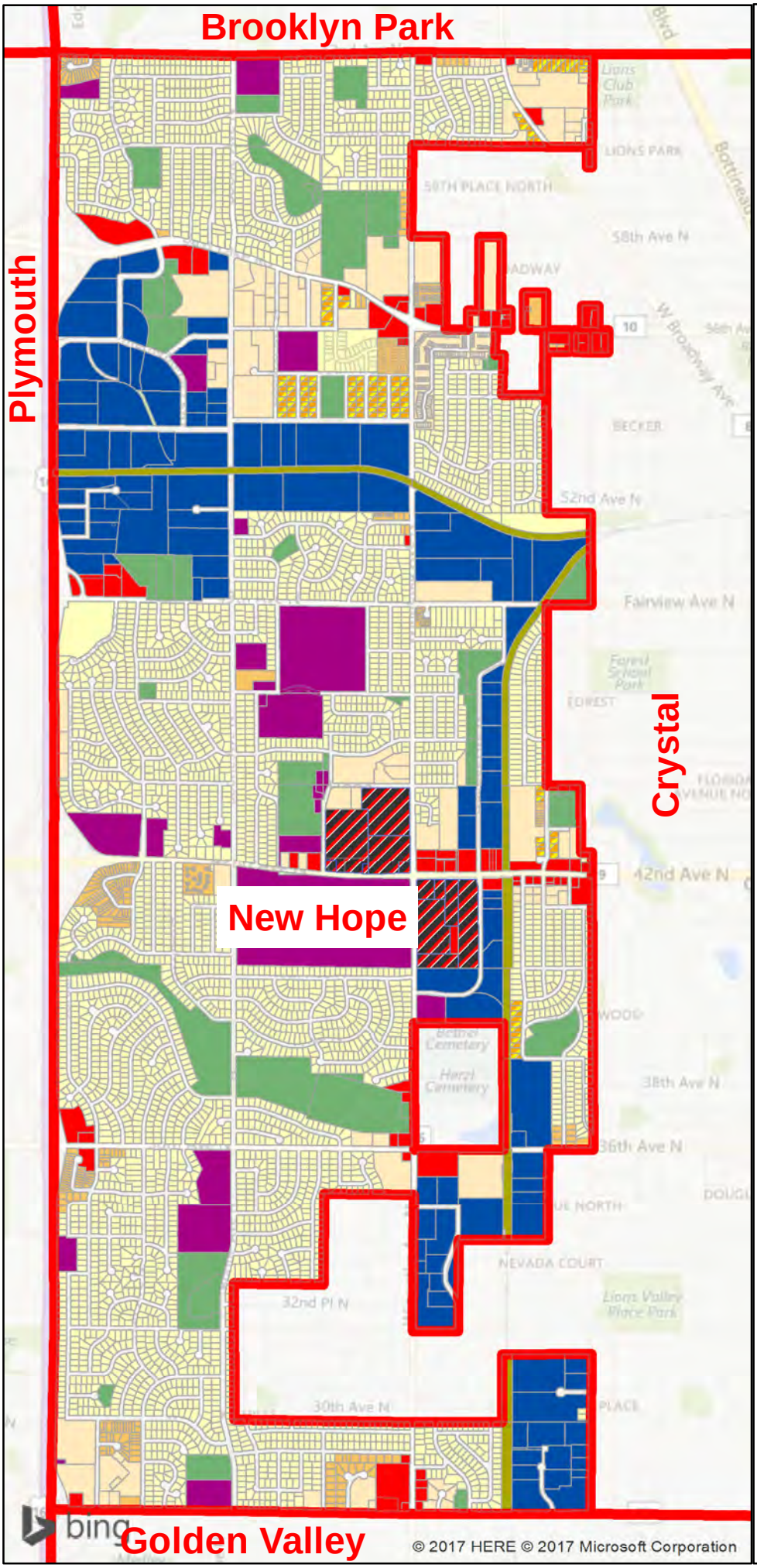

2040 Comprehensive Plan Proposed Land Use Map

City of New Hope

Figure 4

Legend

- Parcels
- City Limits

Proposed Land Use

- Commercial Mixed Use
- Commercial
- High Density Residential
- Industrial
- Low Density Residential
- Low Density/Medium Density Residential
- Medium Density Residential
- Parks & Recreation
- Public & Semipublic
- Rural Residential
- Other

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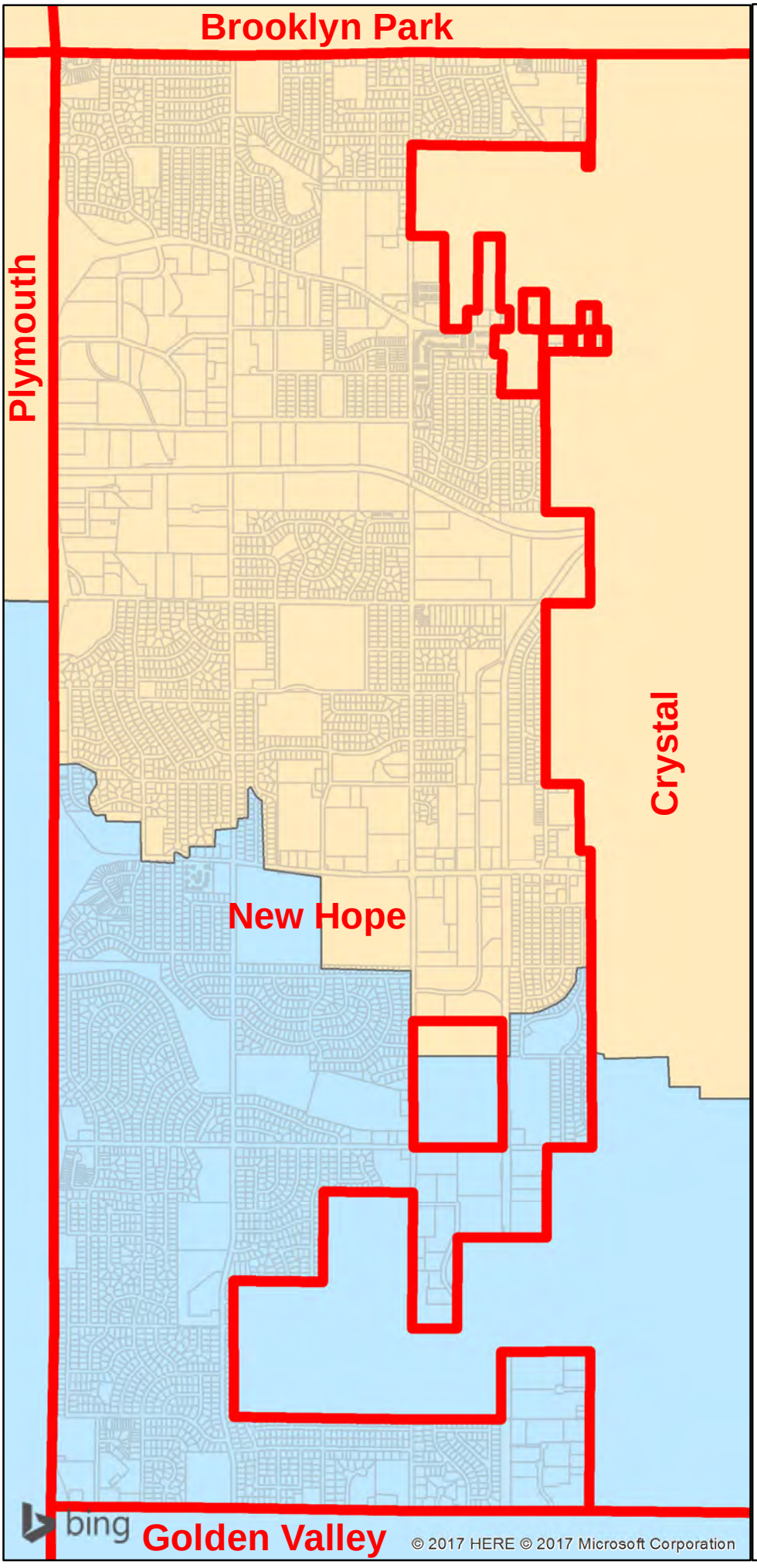

Watershed Management Organization Map

City of New Hope

Figure 5

Legend

- City Limits
- Parcels

Watershed District or WMO

- Bassett Creek WMC
- Shingle Creek and West Mississippi WMC

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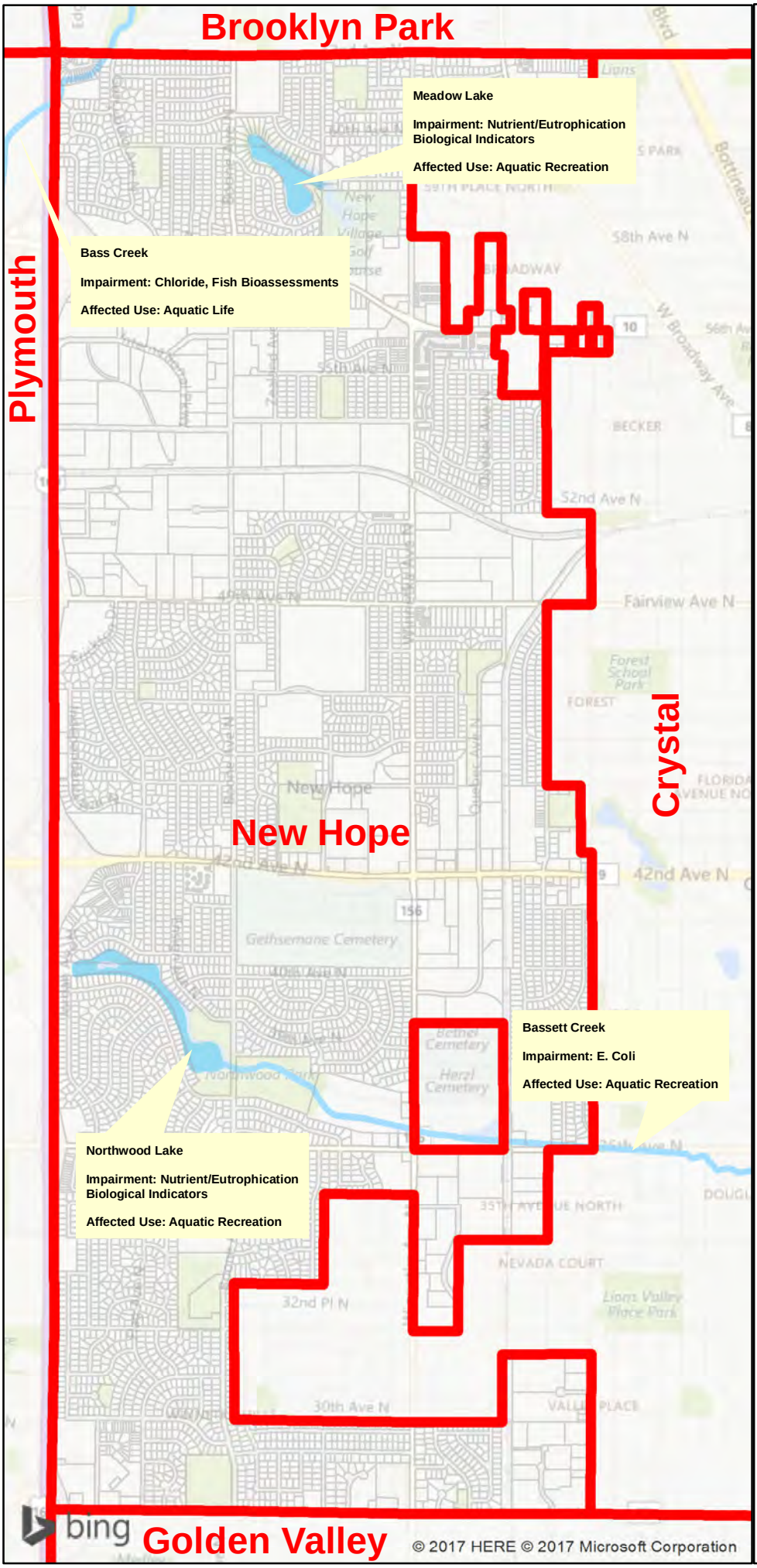

Impaired Waters Map

City of New Hope

Figure 6

Legend

- City Limits
- Parcels
- Impaired Streams
- Impaired Lakes

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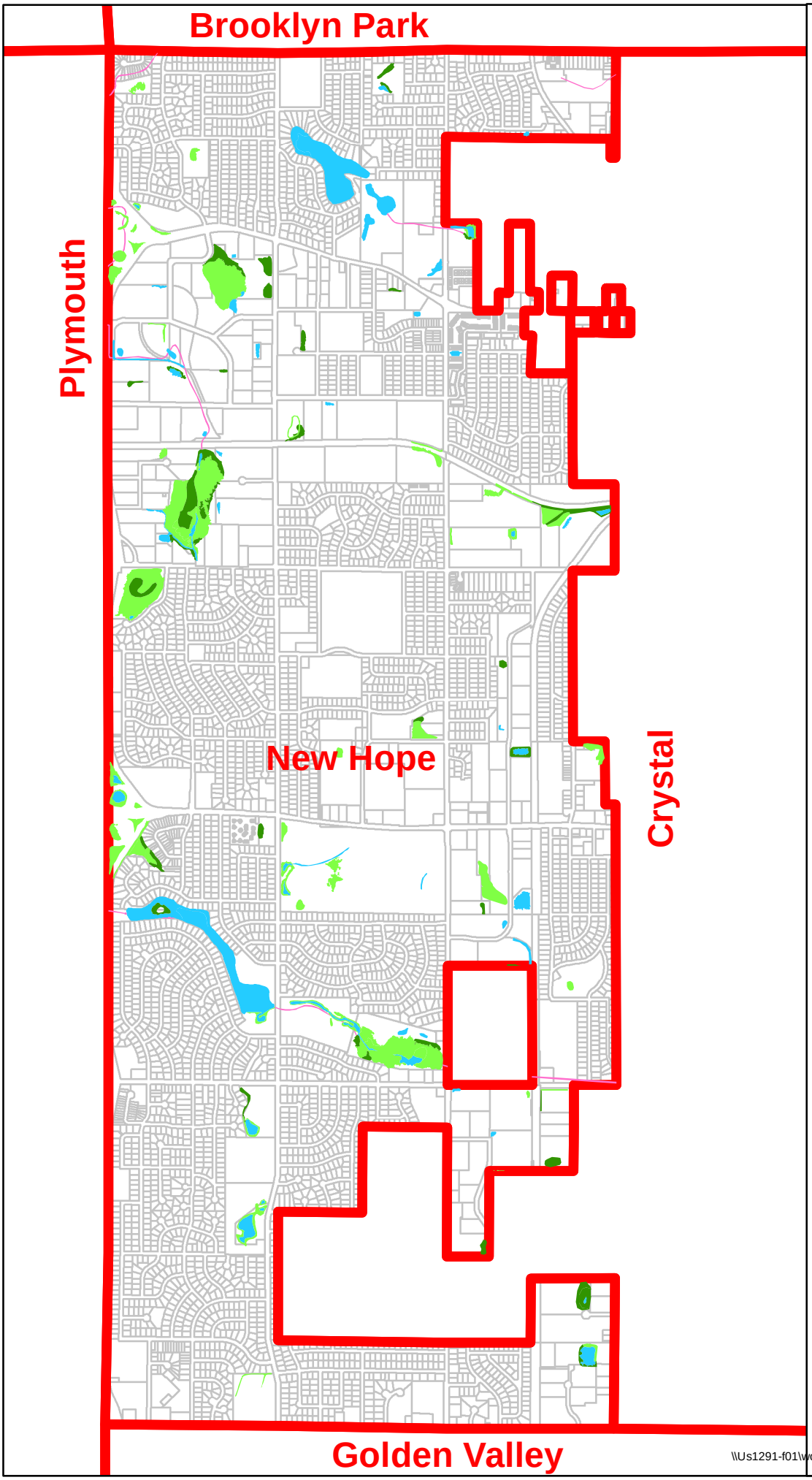

Wetland Inventory

City of New Hope
Local Water Management Plan

Figure 7

Legend

National Wetland Inventory

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine
- City Limits
- Parcels

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Surface Water System Map

Map 1

July 2018

City of Maple Grove

City of Brooklyn Park

City of Plymouth

City of Crystal

City of Golden Valley

SC-A1

SC-A2

SC-A3

SC-A4

SC-A5

SC-A6

SC-A7

BC-A1

BC-A2

BC-A3

BC-A4

63RD AVE N

62ND AVE N

42ND AVE N

36TH AVE N

26TH AVE N

55TH AVE

49TH AVE N

47TH AVE N

45TH AVE N

BASS LAKE RD

SCHMIDT LAKE RD

ROCKFORD RD

MEDICINE LAKE RD

FAIRVIEW AVE N

WEST BROADWAY

WEST BROADWAY AVE

COUNTY ROAD 81

HIGHWAY 169 N

SB HWY169 N TO 36TH AVE N

BOONE AVE N

XYLON AVE N

WINNETKA AVE N

QUEBEC AVE N

FLAG AVE N

ENSIGN AVE N

ZEALAND AVE N

YUKON AVE N

INDEPENDENCE CIR

TERRA LINDA DR

ROSLYN CT

SC-P1.4 Bass Creek

SC-P1.1B Meadow Lake

SC-P1.1A

SC-P2.1 Dorothy Mary Park

SC-P2.6

SC-P3.2 Village Golf Course

SC-P3.16 St Theresa

SC-P3.15 Hosterman Jr High

SC-P3.4 Wincrest

SC-P3.1C

SC-P3.1B

SC-P3.1A

SC-P3.9 Elm Grove Park

SC-P7.3 Victory Park

SC-P7.6A AC Carlson

SC-P6.18D

SC-P6.18C

SC-P6.18A

SC-P6.10

SC-P6.18

SC-P6.14

SC-P6.8

SC-P6.16

SC-P6.19 Collisys Site

SC-P6.7 Pet Hospital

SC-P6.6A

SC-P6.6B

SC-P4.10

SC-P4.3

SC-P4.4

SC-P4.9A

SC-P4.9B

SC-P5.12 45th Avenue

SC-P5.19

SC-P5.21

SC-P5.14 CCI

SC-P5.15 Fred Sims Park

SC-P5.6

SC-P5.5

SC-P5.20

BC-P2.20B

BC-P2.20A

BC-P2.10

BC-P2.11

BC-P2.12

BC-P2.6A

BC-P2.6B

BC-P2.5A Northwood Lake

BC-P2.5B

BC-P2.5C

BC-P2.17

BC-P3.15A Northwood Park

BC-P3.15B

BC-P3.15C

BC-P3.15D

BC-P3.23

BC-P3.6

BC-P3.27

BC-P2.3 St Josephs Church

BC-P2.2A Hidden Valley Park

BC-P2.2B

BC-P2.2C

BC-P2.2D

BC-P3.12

BC-P3.10

Legend

- Existing Basin
- Proposed Basin
- Proposed Storm Sewer
- Existing Storm Sewer
- Existing Channel
- G Treatment Structures
- WMO Boundary
- Drainage Areas Major
- Drainage Areas
- Municipal Boundaries
- Parcels

800 0 1,600

Feet

LWMP Basin Name	Watershed Management Commission Basin Name	
BC-P2.10	NW-NB-24	Bassett Creek Watershed Management Commission
BC-P2.11	NW-NB-25	
BC-P2.12	NW-NB-26	
BC-P2.17	NW-NB-32	
BC-P2.20A	NW-NB-41	
BC-P2.20B	NW-NB-221	
BC-P2.2A-C	NW-NB-38A	
BC-P2.2D	NW-NB-37A	
BC-P2.3	NW-NB-36A	
BC-P2.5A	NW-NB-27-01	
BC-P2.5B	NW-NB-33A-C	
BC-P2.5C	NW-NB-29A-B	
BC-P2.6A	NW-NB-28A	
BC-P2.6B	NW-NB-28B	
BC-P3.10	BC-NB11-3	
BC-P3.15A	BC-A3.15	
BC-P3.23	BC-NB1111-E	
BC-P3.27	BC-NB1111-2	
BC-P3.28	NB 1111-S	
BC-P3.6	BC-NB1111-N	
BC-P3.8	BC-A3.8	
SC-P1.1B	SC 62 East (14-5)	Shingle Creek Watershed Management Commission
SC-P1.4	SC 62 East (14-6)	
SC-P5.6	SC France (7-8)	
SC-P6.18C	SC 62 East (14-3)	
SC-P6.6A	SC 62 East (14-1)	
SC-P6.8	SC 62 East (14-2)	
SC-P7.3	SC 62 East (14-4)	
SC-P7.5	SC 62 East (14-7)	

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Appendix B
Joint Powers Agreements

AMENDED JOINT AND COOPERATIVE AGREEMENT FOR THE ESTABLISHMENT OF A BASSETT CREEK WATERSHED MANAGEMENT ORGANIZATION TO PLAN, CONTROL AND PROVIDE FOR THE DEVELOPMENT OF BASSETT CREEK
(Showing Changes Effective August 29, 2014)

PREFACE

In1968, the nine cities with land in the Bassett Creek watershed entered into a joint powers agreement which established the Bassett Creek Flood Control Commission. For the past 25 years the Commission, consisting primarily of citizen volunteers and city staff members who have volunteered their time, have worked long and hard to achieve the goals set forth when the commission was established. An overall watershed management plan was prepared and approved after public hearings. The Commission has received technical advice from the United States Army Corps of Engineers in their planning and has obtained the support and aid of all United States Senators and Congressional Representatives representing the /member cities. In 1976 the Commission and the Corps of Engineers were successful in having Bassett Creek included in the 1976 Water Resources Development Act (Section 173 Public Law 94-587). The Board of Engineers for Rivers and Harbors submitted a favorable report to the Secretary of the Army on March 30,1977. The Secretary of the Army has by letter under date of June 19, 1978 notified the U. S. Congress of the approval of the Chief of Engineers.

The Bassett Creek Flood Control Commission has participated with the Minnesota Department of Transportation, the Federal Highway Administration, the City of Minneapolis and the Corps of Engineers in the planning and construction of a deep tunnel in Minneapolis which is designed to carry Bassett Creek under a portion of the City of Minneapolis. The Commission has held hearings and approved and ordered upstream construction in the cities of Golden Valley, Plymouth, Minneapolis, and Crystal. The local share of these costs is being paid by the nine member communities pursuant to an agreement consistent with the funding requirements set forth in Articles VII and VIII of the joint powers agreement which has been in effect from 1968 to 1993. The prior joint powers agreement contained the following "Statement of Intent":

STATEMENT OF INTENT REGARDING
AGREEMENT

"Bassett Creek leaves Medicine Lake and flows generally eastward through the Village of Medicine Lake, Plymouth, Golden Valley and into the City of Minneapolis. In Minneapolis, the creek is channeled into a conduit and runs underground to the Mississippi River to its eventual outfall. As the creek runs through the aforementioned communities it collects storm waters and in effect acts as the storm sewer for a large densely populated area and large unpopulated area. It also carries waters channeled to it or naturally flowing to it from the Villages of Minnetonka and New Hope and the Cities of Crystal, Robbinsdale, and St. Louis Park.

For a long time the improvement and development of this creek to carry the increased quantity of storm water has been needed to allow for the orderly planning and development of

the up-stream communities who must rely on the creek as the outfall for storm waters collected or naturally flowing from areas within these communities. As the communities contributing water to the creek have grown, and the lands naturally draining into the creek have been covered with buildings and hard surfaced areas, the ability of the creek and its appurtenant facilities to accommodate the water has diminished. Studies have been conducted by the municipalities both individually and collectively and a study has been made by the United States Army Corps of Engineers. The threat of flood damage increases each year with the increased use of land in the watershed area.

The nine member communities have been meeting over a number of years in an effort to solve the storm water problems in the watershed drained by Bassett Creek. Each year it becomes more apparent that solutions must be sought to allow for a more orderly and efficient planning of the area and to allow the individual communities to plan storm sewer facilities which must be constructed to serve lands within the individual communities. It is also apparent to all nine municipalities that planning and construction to control the Bassett Creek cannot be done on the basis of each community looking at its individual problems. The creek downstream must be improved to accommodate the waters which will eventually be channeled and diverted to the outfall. To determine the downstream improvements it is necessary to know how much water will be contributed by the individual communities upstream and how much storm water will be retained in ponding areas upstream and the area of lands within the watershed which will be controlled by the individual communities as "open lands" and which will not contribute as much storm water as lands which are developed residentially, commercially, or for industrial purposes.

All of the nine communities within the Bassett Creek watershed recognize the aforestated problems. In seeking solutions to the overall drainage problem it becomes apparent that the only way the problems can be solved is by joint planning, joint cooperation, joint financing and a sincere desire on the part of each community to solve the overall drainage problem within the watershed. This means that some agency, commission, district, corporation, political subdivision, or other vehicle must be found to plan and finance improvements to and to control the development of lands within the watershed. Chapter 112 of the Minnesota Statutes provides for the formation of a watershed district with the powers and duties of conserving and controlling water and watercourses within a watershed. The creation of such a district creates a new political subdivision with the power to sue or be sued, to incur debts, liabilities and obligations, to exercise the powers of eminent domain, to provide for assessments, to borrow money and issue bonds and to do all other acts necessary to carry out the powers vested in the district by said Chapter 112. The managers of the district would be appointed by the Minnesota Water Resources Board and subsequent appointments would be by the Board of County Commissioners of Hennepin County. It is the belief of the parties to this agreement that the creation of such a district would remove control one step further from the electorate and the residents of this watershed area who ultimately would pay the costs of the aforesaid improvements. It would also create another political subdivision which would have to plan and work with the individual parties to this agreement to solve the storm water and drainage problems within the watershed.

The purpose of this statement of intent regarding the agreement is to clarify and establish for any court of review or any arbitrator or for the elected successors to the representatives who have entered into this agreement, the reasons and purposes for this joint and cooperative agreement. The parties to this agreement realize that the success or failure of the Bassett Creek

Flood Control Commission created by this agreement is dependent upon the sincere desire of each member community to cooperate in the exercise of a joint power to solve a joint problem. Each party to this agreement pledges this cooperation."

It is the intent of this amended agreement to carry forward the same purposes as aforestated and to revise the Joint Powers Agreement to meet the mandates of Minnesota Statutes, Sections 103B. 201 through 103B. 251 and Minnesota Rules (Chapter 8410 relating to "Metropolitan Area Local Water Management". This amended agreement shall continue the existence of a Watershed Management Organization in accordance with the provisions of the Metropolitan Surface Water Management Act as set forth in Minnesota Statutes 1992 Sections 103B. 201 to and including 103B. 251. The organization hereby created shall have all of the powers and responsibilities set forth in said statutes for the Bassett Creek Watershed. The purpose of the organization shall be to assist the 9 member communities to preserve and use natural water storage and retention systems to:

1. Protect, preserve, and use natural surface and groundwater storage and retention systems;
2. Minimize public capital expenditures needed to correct flooding and water quality problems;
3. Identify and plan for means to effectively protect and improve surface water and groundwater quality;
4. Establish more uniform local policies and official controls for surface water and groundwater quality:
5. Prevent erosion of soil into surface water systems;
6. Promote groundwater recharge;
7. Protect and enhance fish and wildlife habitat and water recreational facilities;
8. To secure other benefits associated with the proper management of surface water.
9. To promote and encourage cooperation among member cities in coordinating local surface water and groundwater plans and to be aware of their neighbor's problems and to protect the public health, safety, and general welfare.
10. To continue the work of the Bassett Creek Water Management Commission and to carry out the plans, policies and programs developed by said Commission from1968 to 1993.

JOINT AND COOPERATIVE AGREEMENT

The parties to this Agreement are governmental units of the State of Minnesota, all of which have lands which drain surface water into Bassett Creek and all of which have power to construct, reconstruct, extend and maintain storm water management facilities. This agreement is made pursuant to the authority conferred upon the parties by Minnesota Statutes 1992, Sections 471.59 and 103B. 201 to and including Section 103B. 251.

NAME

I.

The parties hereto create and establish the Bassett Creek Watershed Management Commission.

GENERAL PURPOSE

II.

The general purpose of this agreement is to provide an organization which can investigate, study, plan and control the construction of facilities to drain or pond storm waters, to alleviate damage by flood waters; to improve the creek channel for drainage; to assist in planning for land use; to repair, improve, relocate, modify, consolidate or abandon, in whole or in part, drainage systems within the watershed area; and to do whatever is necessary to assist in water conservation and the abatement of surface water and groundwater contamination and water pollution. In addition to the aforestated purposes, the organization hereby created shall serve as the organization for the Bassett Creek watershed and shall carry out all of the duties and responsibilities outlined in Minnesota Statutes, Section 103B. 201 through 103B. 251, both inclusive.

DEFINITIONS

III.

For the purposes of this agreement, the terms used herein shall have the meanings as defined in this article.

Subdivision 1. "Commission" means the organization created by this agreement, the full name of which is "Bassett Creek Watershed Management Commission." It shall be a public agency of its members.

Subdivision 2. "Board" means the Board of commissioners of the Commission, consisting of one commissioner or one alternate commissioner from each of the governmental units which is a party to this agreement and which shall be the governing body of the Commission.

Subdivision 3. "Council" means the governing body of a governmental unit which is a member of this Commission.

Subdivision 4. "Governmental Unit" means any city, county, or town.

Subdivision 5. "Member" means a governmental unit which enters into this agreement.

Subdivision 6. "Bassett Creek Watershed" means the area contained within a line drawn around the extremities of all terrain whose surface drainage is tributary to Bassett Creek and within the mapped areas delineated on the map filed with the Board of Water and Soil Resources originally filed pursuant to Minnesota Statutes, 473.877, Subd. 2 and as now amended by Minnesota Statutes, Chapter 103B.

MEMBERSHIP

IV.

The membership of the Commission shall consist of all of the following governmental units as shall elect, through resolution or ordinance adopted by their respective Councils, to become members:

City of Crystal

City of Golden Valley

City of Medicine Lake

City of Minneapolis

City of Minnetonka

City of New Hope

City of Plymouth

City of Robbinsdale

City of St. Louis Park

(The foregoing list is intended to include all governmental units which are presently partially or entirely within the Bassett Creek Watershed.)

No change in governmental boundaries , structure or organizational status shall affect the eligibility of any governmental unit listed above to be represented on the Commission, so long as such governmental unit continues to exist as a separate political subdivision.

BOARD OF COMMISSIONERS

V.

Subdivision 1. The governing body of the Commission shall be its Board. Each member shall be entitled to appoint one representative on the Board, and one alternate who may sit when the representative is not in attendance and said representative or alternate representative shall be called a "Commissioner".

Subdivision 2. The council of each member shall determine the eligibility or qualification of its representative on the Commission but the terms of each Commissioner shall be as established by this agreement.

Subdivision 3. The term of each Commissioner and Alternate Commissioner appointed by each member shall be three years and until their successors are selected and qualify and shall

commence on February l, except that the terms of the Commissioners first appointed shall commence from the date of their appointment and shall terminate as follows:

a. The Commissioners appointed by the Cities of Crystal, Golden Valley, and Medicine Lake shall terminate on February 1, 1994.
b. The Commissioners appointed by the Cities of Minneapolis, Minnetonka, and New Hope shall terminate on February 1, 1995.
c. The Commissioners appointed by the Cities of Plymouth, Robbinsdale, and St. Louis Park shall terminate on February 1, 1996.

Any vacancy shall be filled for the unexpired term of any Commissioner by the council of the governmental unit of the member who appointed said Commissioner. The Commission shall notify the Board of Water and Soil Resources of member appointments and vacancies within 30 days after the Commission is notified by a member. Each member agrees to publish a notice of vacancies resulting from the expiration of a Commissioner's or Alternate Commissioner's term or where a vacancy exists for any reason. Publication and notice shall be in accordance with Minnesota Statutes, Section 103B.227, Subds. 1 and 2, as they now exist or as subsequently amended.

Subdivision 4. The council of each member agrees that its representative commissioner will not be removed from the Board prior to the expiration of the Commissioner's term, unless said Commissioner consents in writing or unless said council has presented the Commissioner with charges in writing and has held a public hearing after reasonable notice to the Commissioner. A member may remove a Commissioner or an Alternate Commissioner for just cause or for violation of a Code of Ethics established by the Commission or by the Member City or for malfeasance, nonfeasance, or misfeasance. Said hearing shall be held by the Member City Council who appointed the Commissioner. A Commissioner or Alternate Commissioner who is an elected officer of a Member City who is not reelected may be removed by the appointing Member City at the appointing Member's discretion. Any decision by a Member to remove a Commissioner or Alternate Commissioner may be appealed to the Board of Water and Soil Resources. A certified copy of the Council's Resolution removing said Commissioner shall be filed with the Secretary of the Board of Commissioners and shall show compliance with the terms of this section.

Subdivision 5. Each member shall within 30 days of appointment file with the Secretary of the Board of Commissioners a record of the appointment of its Commissioner and Alternate Commissioner. The Commission shall notify the Board of Water and Soil Resources of Member appointments and vacancies within 30 days after receiving notice from the Member. Members shall fill all vacancies within 90 days after the vacancy occurs.

Subdivision 6. Commissioners shall serve without compensation from the Commission, but this shall not prevent a governmental unit from providing compensation for its Commissioner for serving on the Board, if such compensation is authorized by such governmental unit and by law. Commission funds may be used to reimburse a Commissioner or Alternate Commissioner for expenses incurred in performing Commission business and if authorized by the Board.

Subdivision 7. At the first meeting of the Board and in February of each year thereafter, the Board shall elect from its Commissioners a Chair, a Vice Chair, a Secretary, a Treasurer , and such other officers as it deems necessary to conduct its meetings and affairs. At the organizational meeting or as soon thereafter as it may be reasonably done, the Commission shall adopt rules and regulations governing its meetings. Such rules and regulations may be amended from time to time at either a regular or a special meeting of the Commission provided that a ten day prior notice of the proposed amendment has been furnished to each person to whom notice of the Board meetings is required to be sent; a majority vote of all eligible votes of the then existing members of the Commission shall be sufficient to adopt any proposed amendment to such rules and regulations.

The Board shall notify each Member City of the location and time of regular and special meetings called by the Board. A meeting shall be held at least annually, and all meetings shall be called and open to the public pursuant to Minnesota Statutes, Section 471.705, or as amended.

POWERS AND DUTIES OF THE BOARD

VI.

Subdivision l. The Commission, acting by its duly appointed Board of Commissioners, shall as it relates to flood control, water quality, ground water recharge and water conservation or in its construction of facilities and other duties as set forth in Minnesota Laws have the powers and duties set out in this article.

Subdivision2. It may employ such persons as it deems necessary to accomplish its duties and powers. Any employee may be on a full time, part time or consulting basis as the Board determines.

Subdivision 3. It may contract for space and for material and supplies to carry on its activities either with a member or elsewhere.

Subdivision 4. It may acquire necessary personal property to carry out its powers and its duties.

Subdivision 5. It shall develop an overall plan containing a capital improvement program within a reasonable time after qualifying, and said plan shall meet all of the requirements as established in Minnesota Statutes, Chapter103B. Said overall plan shall establish a comprehensive goal for the development of Bassett Creek and shall establish a proposed procedure for accomplishing the purposes of the organization as set forth in Article II.

In preparing the overall plan, the Board may consult with the engineering and planning staff of each member governmental unit. It may consult with the Metropolitan Council and other public and private bodies to obtain and consider projections of land use, population growth, and other factors which are relevant to the improvement and development of the Bassett Creek watershed.

Said overall plan shall include the location and adequacy of the outlet or outfall of said Bassett Creek. The plan shall include the quantity of storage facilities and the sizing of an adequate outlet for all branch lateral storm sewers within the Bassett Creek watershed. The plan shall comply with state statutes and regulations promulgated and adopted by the Board of Water and Soil Resources.

Upon completion of the overall plan, or amendments thereto, the Board shall supply each member with a copy of the proposed plan and shall submit the plan for review and comment to Hennepin County, all soil and water conservation districts in Hennepin County and to all statutory and home rule charter cities having territory within the watershed. All governmental units which expect that substantial amendment of its local comprehensive plan will be necessary in order to bring their local water management into conformance with the Commission's watershed plan shall describe as specifically as possible, the amendments to the local plan which it expects will be necessary. The Commission shall hold a public hearing after 60 days mailed notice to the clerk of each member governmental unit. The mailed notice of the hearing shall be sent at the same time the plan is submitted to the members and to other governmental agencies. After such public hearing, the Board shall prescribe the overall plan which shall be the outline for future action by the Commission.

The Commission shall then submit the plan, any comments received and any appropriate amendments to the plan to the Board of Commissioners of Hennepin County. The County shall approve or disapprove projects in the capital improvement program which may require the provision of county funds pursuant to Minnesota Statutes Sections103B. 251or103D. 901. The County shall have 60 days to complete its review. If the County fails to complete its review within 60 days the plan and capital improvement programs shall be deemed approved.

After completion of the review by Hennepin County, the plan and capital improvement program shall be submitted to the Metropolitan Council for its review. After completion of the review by the Metropolitan Counci1 pursuant to Minnesota Statutes, Section103B. 231, Subd. 8, the Commission shall submit the plan to the Minnesota Commissioner of Natural Resources and the Minnesota Pollution Control Agency for review and comment on the consistency of the plan with state laws and rules relating to water and related land resources and to the Board of Water and Soil Resources for review as provided in Minnesota Statutes, Section 103B. 231, Subd. 9.

After return of the plan, the Commission shall submit to each of its members a copy of the plan and all comments of the reviewing authorities. The Commission shall wait for at least 30 days for comments from the members. The Commission shall adopt the overall plan within 120 days after approval of the plan by the Board of Water and Soil Resources. The Commission shall then implement the approved plan and approved capital improvement program by resolution of the Commission as hereinafter set forth. The adoption of said overall plan shall be only upon a favorable vote of a majority of all eligible votes of the then existing members of the Commission. A copy of the adopted plan shall be filed with the clerk of each member governmental unit. Upon notice and hearing as provided for in adopting the overall plan , said plan may be amended by the Board on its own initiative or on the petition of any member governmental unit.

The review provisions set forth in this section are those required by Minnesota Statutes, Section103B. 231. If the law is amended, approvals shall be as required by law and the provisions contained in this section shall be amended accordingly.

Subdivision 6. It shall make necessary surveys or utilize other reliable surveys and data and develop projects to accomplish the purposes for which the Commission is organized.

Subdivision 7. It may cooperate or contract with the State of Minnesota or any subdivision thereof or federal agency or private or public organization to accomplish the purposes for which it is organized.

Subdivision 8. It may order any member governmental unit or units to construct, clean, repair, alter, abandon, consolidate, reclaim or change the course or terminus of any ditch, drain, storm sewer, or water course, natural or artificial, within the Bassett Creek watershed.

Subdivision 9. It may order any member governmental unit or units to acquire, operate, construct or maintain dams, dikes, reservoirs and appurtenant works or other improvements necessary to implement the overall plan.

Subdivision 10. It shall regulate, conserve and control the use of storm and surface water and groundwater within the Bassett Creek watershed.

Subdivision 11. It may contract for or purchase such insurance as the Board deems necessary for the protection of the Commission.

Subdivision 12. It may establish and maintain devices for acquiring and recording hydrological and water quality data within the Bassett Creek watershed.

Subdivision 13. It may enter upon lands within or without the watershed to make surveys and investigations to accomplish the purposes of the Commission. The Commission shall be liable for actual damages resulting therefrom but every person who claims damages shall serve the Chairman or Secretary of the Board of Commissioners with a Notice of Claim as required by Chapter 466.05 of the Minnesota Statutes.

Subdivision 14. It shall provide any member governmental unit with technical data or any other information of which the Commission has knowledge which will assist the governmental unit in preparing land use classifications or local water management plans within the watershed.

Subdivision 15. It may provide legal and technical assistance in connection with litigation or other proceedings between one or more of its members and any other political subdivision, commission, Board or agency relating to the planning or construction of facilities to drain or pond storm waters or relating to water quality within the Bassett Creek watershed. The use of commission funds for litigation shall be only upon a favorable vote of a majority of the eligible votes of the then existing members of the Commission.

Subdivision 16. It may accumulate reserve funds for the purposes herein mentioned and may invest funds of the Commission not currently needed for its operations, in the manner and subject to the laws of Minnesota applicable to statutory cities.

Subdivision 17. It may collect monies, subject to the provisions of this agreement, from its members, Hennepin County and from any other source approved by a majority of its Board.

Subdivision 18. It may make contracts, incur expenses and make expenditures necessary and incidental to the effectuation of these purposes and powers and may disburse therefor in the manner hereinafter provided.

Subdivision 19. It shall cause to be made an annual audit by a certified public accountant or the state auditor of the books and accounts of the Commission and shall make and file a report to its members at least once each year including the following information:

a. the approved budget;

b. a reporting of revenues;

c. a reporting of expenditures;

d. a financial audit report or section that includes a balance sheet, a classification of revenues and expenditures, an analysis of changes in final balances, and any additional statements considered necessary for full financial disclosure;

e. the status of all Commission projects and work within the watershed; and

f. the business transacted by the commission and other matters which affect the interests of the commission.

Copies of said report shall be transmitted to the clerk of each member governmental unit.

Subdivision 20. Its books, reports and records shall be available for and open to inspection by its members at all reasonable times.

Subdivision 21. It may recommend changes in this agreement to its members.

Subdivision 22. It may exercise all other powers necessary and incidental to the implementation of the purposes and powers set forth herein and as outlined and authorized by Minnesota Statutes, Sections 103B. 201 through 103B. 251.

Subdivision 23. It shall cooperate with the State of Minnesota, the Commissioner of Natural Resources and the Director of the Division of Waters, Soils and Minerals of the Department of Natural Resources in obtaining permits and complying with the requirements of Chapter 103G of the Minnesota Statutes.

Subdivision 24. Each member reserves the right to conduct separate or concurrent studies on any matter under study by the Commission.

Subdivision 25. It shall establish a procedure for establishing citizen or technical advisory committees and to provide other means for public participation.

METHOD OF PROCEEDING

VII.

Subdivision 1. The procedures to be followed by the Board in carrying out the powers and duties set forth in Article VI, Subdivisions 5, 6, 7, 8, 9, and 10, shall be as set forth in this article.

Subdivision 2. The Commissioners shall be the same as those serving as Commissioners and Alternate Commissioners for the predecessor Bassett Creek Water Management Commission. The Board shall immediately proceed to revise the overall plan as set forth in Article VI, Subdivision 5 or as required by state statute. Upon adoption of said overall plan, the Board shall proceed to implement said plan, and this implementation may be ordered by stages.

Subdivision 3. The Bassett Creek Watershed Management Commission shall be the successor to the Bassett Creek Water Management Commission as constituted under the prior Joint Powers Agreement. All personal property, money, bank accounts, records or any other thing of value and on hand with the Bassett Creek Water Management Commission shall be transferred to the Bassett Creek Watershed Management Commission.

Subdivision 4. The location and adequacy of the outlet for Bassett Creek shall be determined and the Commission shall then prepare plans which will provide capacity to outlet the surface waters which will be collected within the Bassett Creek watershed. In determining the necessary capacity for said outlet, the Commission shall take into consideration the quantity of land within the watershed which each member governmental unit has to pond or act as a reservoir for surface waters. It shall consider only lands which are under public ownership or under public control and that will be perpetually dedicated to acting as a reservoir for surface waters. The Commission may require from each member governmental unit a commitment in writing of the lands which shall be so dedicated, including a legal description of the gross area and the capacity in acre feet of water storage. No project which will channel or divert additional waters to Bassett Creek shall be commenced by any member governmental unit prior to approval of the Board of the design of an adequate outlet or of adequate storage facilities. The adequacy of said outlet shall be determined by the Board after consultations with its professional engineers.

Subdivision 5. All construction, reconstruction, extension or maintenance of Bassett Creek including outlets, lift stations, dams, reservoirs, or other appurtenances of a surface water or storm sewer system which involve construction by or assessment against any member governmental unit or against privately or publicly owned land within the watershed shall follow the statutory procedures outlined in Chapter 429 of the Minnesota Statutes except as herein modified. The Board shall secure from its engineers or some other competent persona report advising it in a preliminary way as to whether the proposed improvement is feasible and as to whether it shall best be made as proposed or in connection with some other improvement and the estimated cost of the improvement as recommended and the proposed allocation of costs between members.

The Board shall then hold a public hearing on the proposed improvement after mailed notice to the clerk of each member governmental unit within the watershed. The Commission

shall not be required to mail or publish notice except by said notice to the clerk. Said notice shall be mailed not less than 45 days before the hearing , shall state the time and place of the hearing, the general nature of the improvement, the estimated total cost and the estimated cost to each member governmental unit. The Board may adjourn said hearing to obtain further information, may continue said hearing pending action of the member governmental units or may take such other action as it deems necessary to carry out the purposes of this Commission.

To order the improvement, in accordance with the powers and duties established in Article VI, Subdivisions 7, 8 and 9, a resolution setting forth the order for a capital improvement project shall require a favorable vote by two-thirds of all eligible votes of then existing Board of the Commission. In all cases other than for capital improvement projects, a majority vote of all eligible members of the Board shall be sufficient to order the work. The order shall describe the improvement, shall allocate in percentages the cost allocation between the member governmental units, shall designate the engineers to prepare plans and specifications, and shall designate the member who will contract for the improvement in accordance with Subdivision 7 of this Article.

After the Board has ordered an improvement or if the hearing is continued while the member governmental units act on said proposal, it shall forward said preliminary report to all member governmental units with an estimated time schedule for the construction of said improvement. The Board shall allow an adequate amount of time , and in no event less than 45 days, for each member governmental unit to conduct hearings, in accordance with the provisions of the aforestated Chapter 429 or the charter requirements of any city, or to ascertain the method of financing which said member governmental unit will utilize to pay its proportionate share of the costs of the improvement. Each member governmental unit shall ascertain within a period of 90 days the method it shall use to pay its proportionate share of the costs.

If the Commission proposes to utilize Hennepin County’s bonding authority as set forth in Minnesota Statutes, Section 103B. 251, or if the Commission proposes to certify all or any part of a capital improvement to Hennepin County for payment, then and in that event all proceedings shall be carried out in accordance with the provisions set forth in said Section 1038.251.

The Board shall not order and no engineer shall prepare plans and specifications before the Board has adopted a resolution ordering the improvement. The Board may order the advertising for bids upon receipt of notice from each member governmental unit who will be assessed that it has completed its hearing or determined its method of payment or upon expiration of 90 days after the mailing of the preliminary report to the members.

Subdivision 6. Any member governmental unit being aggrieved by the determination of the Board as to the allocation of the costs of said improvement shall have 30 days after the commission resolution ordering the improvement to appeal said determination. Said appeal shall be in writing and shall be addressed to the Board asking for arbitration. The determination of the member's appeal shall be referred to a Board of Arbitration. The Board of Arbitration shall consist of three persons; one to be appointed by the Board of Commissioners, one to be appointed by the appealing member governmental unit, and the third to be appointed by the two so selected. In the event the two persons so selected do not appoint the third person within 15 days after their appointment, then the Chief Judge of the District Court of Hennepin County shall

have jurisdiction to appoint, upon application of either or both of the two earlier selected, the third person to the Board of Arbitration. The third person selected shall not be a resident of any member governmental unit and if appointed by the Chief Judge said person shall be a registered professional engineer. The arbitrators' expenses and fees, together with the other expenses, not including counsel fees, incurred in the conduct of the arbitration shall be divided equally between the Commission and the appealing member.

Arbitration shall be conducted in accordance with the Uniform Arbitration Act, Chapter 572 of the Minnesota Statutes.

Subdivision 7. Contracts for Improvements. All contracts which are to be let as a result of the Board's order to construct, repair, alter, reclaim or change the course or terminus of any ditch, drain, storm sewer, or watercourse, or to acquire, operate, construct or maintain dams, dikes, reservoirs or their appurtenances or to carry out any of the other provisions of the plan as authorized by Minnesota Statutes, and for which two or more member governmental units shall be responsible for the costs, shall be let in accordance with the provisions of Section 429.041 of the Minnesota Statutes. The bidding and contracting of said work shall be let by any one of the member governmental units, as ordered by the Board of Commissioners, after compliance with the statutes. All contracts and bidding procedures shall comply with all the requirements of law applicable to contracts let by a statutory city in the State of Minnesota.

The Commission shall not have the authority to contract in its own name for any improvement work for which a special assessment will be levied against any private or public property under the provisions of Chapter 429 or under the provisions of any City charter. These contracts shall be awarded by action of the council of a member and shall be in the name of a member governmental unit. This section shall not preclude the Commission from proceeding under Minnesota Statutes, Section 103B. 251.

Subdivision 8. Contracts with Other Governmental Bodies. The Commission may exercise the powers set forth inArticleV1, Subdivision 7, but said contracts for a capital improvement shall require a favorable vote of two-thirds majority of the eligible votes of the then existing members of the Commission.

Subdivision 9. Supervision. All improvement contracts awarded under the provisions of Subdivision 7of this Article shall be supervised by the member governmental unit awarding said contract or said member governmental unit may contract or appoint any qualified staff member or members of the Commission to carry out said supervision, but each member agrees that the staff of this Commission shall be authorized to observe and review the work in progress and the members agree to cooperate with the Commission staff in accomplishing the purposes of this Commission.

Representatives of the Commission shall have the right to enter upon the place or places where the improvement work is in progress for the purpose of making reasonable tests and inspections. The staff of this Commission shall report and advise and recommend to the Board on the progress of said work.

Subdivision 10. Land Acquisition. The Commission shall not have the power of eminent domain. The member governmental units agree that any and all easements or interest in land which are necessary will be negotiated or condemned in accordance with Chapter 117 of the Minnesota Statutes by the unit wherein said lands are located, and each member agrees to acquire the necessary easements or right of way or partial or complete interest in land upon order of the Board of Commissioners to accomplish the purposes of this agreement. All reasonable costs of said acquisition shall be considered as a cost of the improvement. If a member governmental unit determines it is in the best interests of that member to acquire additional lands, in conjunction with the taking of lands for storm and surface drainage or storage, for some other purposes, the costs of said acquisition will not be included in the improvement costs of the ordered project. The Board in determining the amount of the improvement costs to be assessed to each member governmental unit may take into consideration the land use for which said additional lands are being acquired and may credit the acquiring municipality for said land acquisition to the extent that it benefits the other members of this agreement. Any credits may be applied to the cost allocation of the improvement project under construction or the Board if feasible and necessary may defer said credits to a future project.

If any member unit refuses to negotiate or condemn lands as ordered by the Board, any other member may negotiate or condemn outside its corporate limits in accordance with the aforesaid Chapter 117. All members agree that they will not condemn or negotiate for land acquisition to pond or drain storm and surface waters within the corporate boundaries of another member within the Bassett Creek watershed except upon order of the Board of this Commission.

The Commission shall have authority to establish land acquisition policies as a part of the overall plan. The policies shall be designed to equalize costs of land throughout the watershed. Said policy is contained in the existing watershed management plan and may be continued in any revised overall plan required by Minnesota Statutes.

Subdivision 11. Pollution Control and Water Quality. The Commission shall have the authority and responsibility to protect and improve water quality in the watershed as this is one of the main purposes set forth in the Surface Water Management Act. All member governmental units agree that they will refuse to allow the drainage of sanitary sewage or industrial wastes onto any land or into any watercourse or storm sewer draining into Bassett Creek. The Board may investigate on its own initiative and shall investigate upon petition of any member all complaints relating to pollution of surface water or groundwater draining into or affecting Bassett Creek or its tributaries. Upon a finding that the creek or surface waters or groundwater are being polluted, the Board shall order the member governmental unit to abate this nuisance and each member agrees that it will take all reasonable action available to it under the law to alleviate the pollution and to assist in protecting and improving the water quality of surface water and groundwater in the watershed.

Subdivision 12. Local Water Management Plans. The Commission shall have power and authority to review the members' local water management plans, capital improvement programs and official controls required by Minnesota Statutes Section 103B. 235 and/or by rules promulgated and adopted by the Board of Water and Soil Resources. The members also understand that the overall plan and capital improvement program required for the entire watershed must consist of the local parts in the plan and therefore every effort shall be made by

the Commission to coordinate the local plans with the watershed's overall plan. The members further understand and agree that upon completion and approval of the overall plan required by Minnesota Statutes 103B. 231, each member will be required to present their local management plan to the Commission as required by Minnesota Statutes, Section 103B. 235. It is therefore important that each member provide the Commission with their best effort to coordinate and plan for the individual member's local plan at the same time the watershed overall plan is being assembled.

FINANCES

VIII.

Subdivision 1. The Commission funds may be expended by the Board in accordance with this agreement and in accordance with the procedures as established by law and in the manner as may be determined by the Board. The Board shall designate one or more national or state bank or trust companies, authorized by Chapters 118 and 427 of the Minnesota Statutes to receive deposits of public moneys and to act as depositories for the Commission funds. In no event shall there be a disbursement of Commission funds without the signature of at 1east two Board members, one of whom shall be the Treasurer or his Authorized Deputy Treasurer. The Treasurer shall be required to file with the Secretary of the Board a bond in the sum of at least $10,000 or such higher amount as shall be determined by the Board. The Commission shall pay the premium on said bond.

Subdivision 2. The members agree to contribute all cash, bank deposits, and other assets held by the Bassett Creek Water Management Commission to the new Bassett Creek Watershed Management Commission to carry out the purposes of the Commission. Each member governmental unit has contributed its proportionate share of said funds based on the net tax capacity and area of all taxable property within the Bassett Creek watershed.

Subdivision 3. Each member agrees to contribute each year to a general fund, said fund to be used for general administration purposes including, but not limited to: salaries, rent, supplies, development of an overall plan, insurance, and bonds, and to purchase and maintain devices to measure hydrological and water quality data. Said funds may also be used for normal maintenance of the facilities, but any extraordinary maintenance or repair expense shall be treated as an improvement cost and processed in accordance with Subdivision 4 of this Article. The annual contribution by each member shall be based fifty percent (50%)on the net tax capacity of all property within the watershed and fifty percent (50%) on the basis of the total area of each member within the boundaries of the Watershed each year to the total area in the Bassett Creek watershed. In no event shall any assessment require a contribution to exceed one-half of one percent of the net tax capacity within the watershed.

Subdivision 4.

(a) An improvement fund shall be established for each improvement project instituted under Article VII, Subdivision 3. Each member agrees to contribute to said fund its proportionate share of the engineering, legal and administrative costs as determined by the amount to be assessed against each member as a cost of the improvement. The Board shall submit in writing a

statement to each member, setting forth in detail the expenses incurred by the Commission for each project.

Each member further agrees to pay to or contract with the member governmental unit awarding said contract for the improvement, its proportionate share of the cost of the improvement in accordance with the determination of the Board under Article VII, Subdivision 5. The member awarding the contract shall submit in writing copies of the engineer's certificate authorizing payment during construction and the member being billed agrees to pay its proportionate share of said improvement costs within 30 days after receipt of the statement. The member awarding the contract shall advise other contributing members of the tentative time schedule of the work and the estimated times when the contributions shall be necessary.

(b) Notwithstanding the provisions of paragraph (a) of this subdivision, the Commission may by a vote of 2/3rds of all eligible votes of the then existing members of the Commission decide to proceed to fund all or any part of the cost of a capital improvement contained in the capital improvement program of the plan pursuant to the authority and subject to the provisions set forth in Minnesota Statutes, Section 103B. 251. The Commission and Hennepin County may establish a maintenance fund to be used for normal and routine maintenance of an improvement constructed in whole or in part with money provided by Hennepin County pursuant to Minnesota Statutes, Section103B. 251. The levy and collection of an ad valorem tax levy for maintenance shall be by Hennepin County based upon a tax levy resolution adopted by a majority vote of all eligible members of the Commission and remitted to the County on or before the date prescribed by law each year. If it is determined to levy for maintenance, the Commission shall be required to follow the hearing process established by Minnesota Statutes, Section103D. 915 and103D. 921and acts amendatory thereof and in addition thereto. Mailed notice shall be sent to the Clerk of each member municipality at least 30 days prior to the hearing.

Subdivision 5. On or before July1 of each year, the Board shall adopt a detailed budget for the ensuing year and decide upon the total amount necessary for the general fund. Budget approval shall require a favorable vote by a majority of all eligible votes of the then existing members of the Board.

The Secretary of the Board shall certify the budget on or before July 1 to the clerk of each member governmental unit together with a statement of the proportion of the budget to be provided by each member. The Council of each member agrees to review the budget, and the Board shall upon notice from any member received prior to August 1, hear objections to the budget, and may, upon notice to all members and after a hearing, modify or amend the budget, and then give notice to the members of any and all modifications or amendments.

Each member agrees to provide the funds required by the budget and said determination shall be conclusive if no member enters objections in writing on or before August 1. If no objections are submitted to the Board, each member agrees to provide the funds approved by the Board, after the Board has conducted the aforementioned hearing. Modifications or amendments to the original budget require a favorable vote by a majority of all eligible voters of then existing members of the Board.

The budget shall not in any event require any member to contribute in excess of one-half of one percent of the net tax capacity of all taxable property within the watershed and within said members corporate boundaries.

The schedule of payments by the members shall be determined by the Board in such a manner as to provide for an orderly collection of the funds needed.

Upon notice and hearing, the Board by a favorable vote of a majority of all eligible votes of then existing members may adopt a supplemental budget requiring additional payments by the members within 60 days of its adoption but in no event shall the budget require any member to contribute in excess of one-half of one percent of the net tax capacity of all taxable property within the watershed or within any member's corporate boundaries in any one calendar year.

Members' attention is drawn to Minnesota Statutes, Section 103B. 245, which authorizes a Watershed Management Tax District to be created within each member City to pay the costs of planning and for the purpose of paying capital costs and/or normal and routine maintenance of facilities.

Subdivision 5. Cost Allocation. All capital costs incurred by the Commission shall be apportioned to the respective members on either (l), (2), or (3) of the following bases:

(1) A negotiated amount to be arrived at by the members who have lands in the subdistrict responsible for the capital improvement.

(2) (a) Fifty percent of all capital costs or the financing thereof shall be apportioned to each member on the basis of the real property valuation net tax capacity of each member within the boundaries of the watershed each year to the total real property valuation net tax capacity in the Bassett Creek watershed area governed by this Agreement.

(b) Fifty percent of all capital costs or the financing thereof shall be apportioned to each member on the basis of the total area of each member within the boundaries of the watershed each year to the total area in the Bassett Creek watershed area governed by this Agreement.

(c) Capital costs allocated under the 50% area/50% net tax capacity formula herein set forth may be varied by the Commission by a 2/3rds vote if:

(1) any member community receives a direct benefit from the capital improvement which benefit can be defined as a lateral as well as a trunk benefit, or

(2) the capital improvement provides a direct benefit to one or more members which benefit is so disproportionate as to require in a sense of fairness a modification in the 50/50 formula.

(d) Credits to any member for lands acquired by said member to pond or store storm and surface water shall be allowed against costs set forth in Subsections (a), (b), and (c) of this Section.

(3) If the project is constructed and financed pursuant to Minnesota Statutes, Section 103B. 251, the members understand and agree that said costs will be levied on all taxable property in the watershed as set forth in the statute.

MISCELLANEOUS PROVISIONS

IX.

Subdivision 1. The Commission shall not have the power to issue certificates, warrants or bonds.

Subdivision 2. The Commission shall not have the power of eminent domain and shall not own any interest in real property. All interests in lands shall be held in the name of the corporate member wherein said lands are located.

Subdivision 3. The Commission shall not have the power to levy a special assessment upon any privately or publicly owned land. All such assessments shall be levied by the member wherein said lands are located. It shall have the power to require any member to contribute the costs allocated or assessed according to the other provisions of this agreement.

Subdivision 4. Each member agrees that it will not directly or indirectly collect or divert any additional surface water to the Mississippi River or its tributaries from any subdistrict or subtrunk without a permit from the Board of Commissioners. Permits may be granted by the Board for a member to proceed with the construction or reconstruction of improvements within the individual corporate members' boundaries and at its sole cost upon a finding:

(a) that there is an adequate outlet; and
(b) that said construction is in conformance with the overall plan; and
(c) that the construction will not adversely affect other members of this agreement.

Subdivision 5. Any member who is more than 60 days in default in contributing its share to the general fund shall have the vote of its Board member suspended pending the payment of its proportionate share.

Any member who is more than 60 days in default in contributing its proportionate share of the cost of any improvement to the contracting member shall upon application of the contracting member have the vote of its Board member suspended, pending the payment of its proportionate share.

Any Board member whose vote is under suspension shall not be considered as an eligible member as such membership affects the number of votes required to proceed on any matter under consideration by the Board.

DURATION

X.

Subdivision l. Each member agrees to be bound by the terms of this agreement until January 1, 2025, and it may be continued thereafter at the option of the parties.

Subdivision 2. This agreement may be terminated prior to January 1, 2025, by the unanimous consent of the parties. If the agreement is to be terminated, a notice of the intent to

dissolve the Commission shall be sent to the Board of Water and Soil Resources and to Hennepin County at least 90 days prior to the date of dissolution.

Subdivision 3. In addition to the manner provided in Subdivision 2 for termination, any member may petition the Board to dissolve the agreement. Upon 90 days notice in writing to the clerk of each member governmental unit and to the Board of Water and Soil Resources and to Hennepin County, the Board shall hold a hearing and upon a favorable vote by a majority of all eligible votes of then existing Board members, the Board may by Resolution recommend that the Commission be dissolved. Said Resolution shall be submitted to each member governmental unit and if ratified by three-fourths of the councils of all eligible members within 60 days, said Board shall dissolve the Commission allowing a reasonable time to complete work in progress and to dispose of personal property owned by the Commission.

DISSOLUTION

XI.

Upon dissolution of the Commission , all property of the Commission shall be sold and the proceeds thereof, together with monies on hand, shall be distributed to the eligible members of the Commission. Such distribution of Commission assets shall be made in proportion to the total contribution to the Commission as required by the last annual budget.

EFFECTIVE DATE

XII.

This agreement shall be in full force and effect upon the filing of a certified copy of the resolution approving said agreement by all nine members. Said resolution shall be filed with the Chair of the existing Bassett Creek Watershed Management Commission (presently W. Peter Enck of the City of New Hope), who shall notify all members in writing of its effective date and shall set the date for the next meeting to be conducted under this amended Joint Powers Agreement.

IN WITNESS WHEREOF, the undersigned governmental units, by action of their governing bodies, have caused this agreement to be executed in accordance with the authority of Minnesota Statutes Sections 103B. 211 and 471.59.

AMENDMENT TO AMENDED JOINT AND COOPERATIVE AGREEMENT ESTABLISHING THE SHINGLE CREEK WATERSHED MANAGEMENT COMMISSION TO PLAN, CONTROL AND PROVIDE FOR THE DEVELOPMENT OF THE SHINGLE CREEK WATERSHED

THIS AGREEMENT is made by and between the cities of Brooklyn Center, Brooklyn Park, Crystal, Maple Grove, Minneapolis, New Hope, Osseo, Plymouth, and Robbinsdale, all of which are Minnesota municipal corporations (the "Member Cities").

WITNESSETH:

WHEREAS, the Member Cities are parties to a joint powers agreement forming the Shingle Creek Watershed Management Commission entitled the AMENDED JOINT AND COOPERATIVE AGREEMENT ESTABLISHING THE SHINGLE CREEK WATERSHED MANAGEMENT COMMISSION TO PLAN, CONTROL AND PROVIDE FOR THE DEVELOPMENT OF THE SHINGLE CREEK WATERSHED (the "Joint Powers Agreement"), the effective date of which was May 1, 1994; and

WHEREAS, the Member Cities wish to amend the Joint Powers Agreement as hereinafter provided;

NOW, THEREFORE, on the basis of the premises and the mutual covenants and agreements contained in the Joint Powers Agreement as hereinafter amended, the parties agree to amend the Joint Powers Agreement as follows:

1. Article VIII. FINANCES is amended to read as follows:

Subdivision 1. The Commission funds may be expended by the Board in accordance with this agreement and in accordance with the procedures as established by law and in the manner as may be determined by the Board. The Board shall designate one or more national or state bank or trust companies, authorized by Chapters 118 and 427 of the Minnesota Statutes to receive deposits of public moneys and to act as depositories for the Commission funds. In no event shall there be a disbursement of Commission funds without the signature of at least two Board members, one of whom shall be the Treasurer or the Treasurer's Authorized Deputy Treasurer. The Treasurer shall be required to file with the Secretary of the Board a bond in the sum of at least $10,000 or such higher amount as shall be determined by the Board. The Commission shall pay the premium on said bond.

Subdivision 2. Each member agrees to contribute each year to a general fund, said fund to be used for general administration purposes including, but not limited to: salaries, rent, supplies, development of an overall plan, engineering and legal expenses, insurance, and bonds, and to purchase and maintain devices to measure hydrological and water quality data. Said funds may also be used for

normal maintenance of the facilities, but any extraordinary maintenance or repair expense shall be treated as an improvement cost and processed in accordance with Subdivision 5 of this Article. The annual contribution by each member shall be based fifty percent (50%) on the net tax capacity of all property within the Watershed and fifty percent (50%) on the basis of the total area of each member within the boundaries of the watershed each year to the total area in the Shingle Creek Watershed.

Subdivision 3.

(a) An improvement fund shall be established for each improvement project instituted under Article VII, Subdivision 3. Each member agrees to contribute to said fund its proportionate share of the engineering, legal and administrative costs as determined by the Commission as the amount to be assessed against each member as a cost of the improvement. The Board shall submit in writing a statement to each member, setting forth in detail the expenses incurred by the Commission for each project.

Each member further agrees to pay to or contract with the member governmental unit awarding said contract for the improvement, its proportionate share of the cost of the improvement in accordance with the determination of the Board under Article VII, Subdivision 4. The member awarding the contract shall submit in writing copies of the engineer's certificate authorizing payment during construction and the member being billed agrees to pay its proportionate share of said improvement costs within 30 days after receipt of the statement. The member awarding the contract shall advise other contributing members of the tentative time schedule of the work and the estimated times when the contributions shall be necessary.

(b) Notwithstanding the provisions of paragraph (a) of this subdivision, the Commission may by a vote of 2/3rds of all eligible votes of the then existing members of the Commission decide to proceed to fund all or any part of the cost of a capital improvement contained in the capital improvement program of the plan pursuant to the authority and subject to the provisions set forth in Minnesota Statutes, Section 103B.251. It is expressed as a goal of this Agreement that cost sharing of capital improvement costs be assigned and agreed to by members pursuant to Article VIII, Subdivision 7, Subsections 1 and 2 of this Agreement. Without such agreement, all improvements will be constructed pursuant to Minnesota Statutes, Section 103B.251. The Commission and Hennepin County may establish a maintenance fund to

be used for normal and routine maintenance of an improvement constructed in whole or in part with money provided by Hennepin County pursuant to Minnesota Statutes, Section 103B.251. The levy and collection of an ad valorem tax levy for maintenance shall be by Hennepin County based upon a tax levy resolution adopted by a majority vote of all eligible members of the Commission and remitted to the County on or before the date prescribed by law each year. If it is determined to levy for maintenance, the Commission shall be required to follow the hearing process established by Minnesota Statutes, Sections 103D.915 and 103D.921 and acts amendatory thereof and in addition thereto. Mailed notice shall be sent to the Clerk of each member municipality at least 30 days prior to the hearing.

Subdivision 4. On or before July 1 of each year, the Board shall adopt a detailed budget for the ensuing year and decide upon the total amount necessary for the general fund. Budget approval shall require a favorable vote by a majority of all eligible votes of the then existing members of the Board.

The secretary of the Board shall certify the budget on or before July 1 to the clerk of each member governmental unit together with a statement of the proportion of the budget to be provided by each member.

The Council of each member agrees to review the budget, and the Board shall upon written notice from any member received prior to August 1, hear objections to the budget, and may, upon notice to all members and after a hearing, modify or amend the budget, and then give notice to the members of any and all modifications or amendments.

Subject to the limitations of Subdivision 5 below, each member agrees to provide the funds required by the budget. If no objections are submitted to the Board, each member agrees to provide the funds approved by the Board, after the Board has conducted the aforementioned hearing. Modifications or amendments to the original budget require a favorable vote by a majority of all eligible voters of then existing members of the Board.

The schedule of payments by the members shall be determined by the Board in such a manner as to provide for an orderly collection of the funds needed.

Subject to the limitations of Subdivision 6 below, upon notice and hearing, the Board by a favorable vote of a majority of all eligible votes of then existing members may adopt a supplemental budget requiring

additional payments by the members within 60 days of its adoption but in no event shall the budget require any member to contribute in excess of one-half of one percent of the net tax capacity of all taxable property within the watershed or within any member's corporate boundaries in any one calendar year.

Members' attention is drawn to Minnesota Statutes, Section 103B.245, which authorizes a Watershed Management Tax District to be created within each member City to pay the costs of planning and for the purpose of paying capital costs and/or normal and routine maintenance of facilities.

Subdivision 5. Assessments levied against Member Cities for general fund purposes are subject to all of the following limitations:

1. Assessment Cap.

A. Definition. For purposes of this subdivision, the term "Assessment Cap" means the total amount that the Commission may levy against Member Cities for general fund purposes in any year without the consent of a majority of Member Cities. The Assessment Cap for 2004 is $262,750. Thereafter, the Assessment Cap will increase or decrease each year based, pro rata, on the annual change in the consumer price index (U.S. City Average, All Items, All Urban Consumer) to the end of the second quarter of the preceding year. (For example, the Assessment Cap for 2005 will be adjusted on the basis of the change in the CPI from the end of the second quarter of 2003 to the end of the second quarter of 2004.)

B. Limitation and City Consent. The Commission may levy an amount for general fund purposes in excess of the Assessment Cap only with the consent of a majority of Member Cities expressed by resolutions duly adopted by the city councils before September 1st of the preceding year. The Commission may request authority to exceed the Assessment Cap for one or more years.

If a majority of Member Cities do not consent to the levy of an assessment in excess of the Assessment Cap, the Commission may levy an amount up to the Assessment Cap and the Commission will make necessary changes to the budget.

2. Limitation on Increase of Assessment. The Commission may not assess a total levy against Member Cities for general fund purposes in any year in an amount that exceeds 120% of the

previous years' assessment without the consent of a majority of the Member Cities given in the same manner as described in paragraph 1B above.

3. Limitation Based on Tax Capacity. The Commission may not assess a levy or combination of levy and supplemental levies against the Member Cities for general fund purposes in any one year that requires any member to contribute an amount in excess of one-half of one percent of the net tax capacity of that portion of the city lying within the Watershed.

Subdivision 6. Supplemental Budget and Limit on Assessment. The Board may adopt a supplemental budget in accordance with Subdivision 4. However, the amount assessed against the Member Cities for general fund purposes, when added together with other assessments for general fund purposes for the same year, may not exceed the limitations on assessments set forth in Subdivision 5 without the consent of the Member Cities. The consent of the Member Cities shall be secured in the same manner as is provided in Subdivision 5, except that the September 1 deadline for Member City approval does not apply.

Subdivision 7. Cost Allocation for Capital Projects. The Commission shall apportion to the respective members on either (1), (2) or (3) of the following bases:

(1) A negotiated amount to be arrived at by the members who have lands in the subdistrict responsible for the capital improvement.

(2) (a) Fifty percent of all capital costs or the financing thereof shall be apportioned to each member on the basis of the net tax capacity of each member within the boundaries of the watershed to the total net tax capacity in the Shingle Creek Watershed area governed by this Agreement.

(b) Fifty percent of all capital costs or the financing thereof shall be apportioned to each member on the basis of the total area of each member within the boundaries of the watershed each year to the total area in the Shingle Creek Watershed governed by this Agreement.

(c) Capital costs allocated under the 50% area/50% net tax capacity formula herein set forth may be varied by the Commission by a 2/3rds vote if:

(1) any member community receives a direct benefit from the capital improvement which benefit can be defined as a lateral as well as a trunk benefit, or

(2) the capital improvement provides a direct benefit to one or more members which benefit is so disproportionate as to require in a sense of fairness a modification in the 50/50 formula.

(d) Credits to any member for lands acquired by said member to pond or store storm and surface water shall be allowed against costs set forth in Subsections (a), (b) and (c) of this Section.

(3) If agreement is not reached to proceed as set forth in Subsection 1 or 2 of this Subdivision and if the project is constructed and financed pursuant to Minnesota Statutes, Section 103B.251, the members understand and agree that said costs will be levied on all taxable property in the watershed as set forth in the statute.

Section 2. This amendment shall be in full force and effect upon the filing of a certified copy of a resolution approving said amendment by all nine Member Cities. Said resolutions shall be filed with the Chair of the Shingle Creek Watershed Commission, who shall certify the effective date of the amendment in writing to all Member Cities. The effective date of the amendment shall be when approved by all of the Member Cities and when the mayor and other authorized city representatives have executed the amended agreement.

IN WITNESS WHEREOF, the undersigned government units, by action of their governing bodies, have caused this Agreement to be executed in accordance with the authority of Minnesota Statutes, Sections 103B.201 through 103B.255 and Section 471.59.

Dated: 2/23/04

CITY OF BROOKLYN CENTER

By: Robert Pagre
Its Mayor Pro Tem

And by:
Its City Manager

Dated: 11-21-05

CITY OF BROOKLYN PARK

By: _____
Its Mayor

And by: _____
Its City Manager

Dated: March 1, 2004

CITY OF CRYSTAL

By: _____
Its Mayor

And by: _____
Its City Manager

Dated: _____

CITY OF MAPLE GROVE

By: _____
Its MAYOR

And by: _____
Its City ADMINISTRATOR

Dated: 3/21/06

_____
Finance Officer's Designee

CITY OF MINNEAPOLIS

By: _____
Its Mar 02 '06

And by: _____
Its PWD

Dated: 2/23/04

CITY OF NEW HOPE

By: _____
Its Mayor

And by: _____
Its City Manager

Dated: 5-27-04

CITY OF OSSEO

By: _____
Its MAYOR

And by: _____
Its Clerk Administrator

Dated: _____

CITY OF PLYMOUTH

By: _____
Its Mayor

And by: _____
Its City Manager

Dated: 3/1/2004

CITY OF ROBBINSDALE

By: _____
Its Mayor

And by: _____
Its City Manager

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Appendix C
Water Quality Cash Dedication Methodology

Calculation of Cash Dedication – Supplemental Information
City of New Hope LWMP

Introduction

The following is a more detailed explanation of the calculation of cash dedications for new and re-development projects as proposed in the New Hope Local Water Management Plan. Guidance for calculation of the cash dedication amounts is presented in Section 6.7. This method is similar to the methods used in several other Twin City Metro area suburbs.

Background

The method of cash dedication calculation proposed in the draft plan relies on the use of a water quality pond design program called PONDSIZE to determine the size of a hypothetical pond recommended to treat runoff from the development in question. This model requires input on the area of the proposed development, how much of the site will be covered by impervious surfaces (such as rooftops, driveways, and streets), and the capability of non-impervious areas to absorb precipitation. The output of the PONDSIZE model provides information on the surface area of the pond at normal water level, the volume of the standing water pool in the pond (i.e. between the normal water level and the bottom of the pond), and the mean depth of the standing water pool. Depending on the land use proposed for the development, the area of the hypothetical pond (acres) in the model output is then multiplied by the appropriate unit land cost (see Section 6.7 for unit costs) and the pond volume (in cubic yards) is multiplied by the unit pond volume cost. The two costs are summed. A cost for appurtenances is then added which is 20% of the sum of the land and pond volume cost or $4,000, whichever is less. The total of the pond area cost, the pond volume cost, and the appurtenance cost is the total cash dedication for the development.

The same general method is used when figuring a cash dedication for a redevelopment or site expansion project where impervious coverage would be expanded as a result of the redevelopment or site expansion activity. The purpose of this proposed provision is to provide an incentive to avoid expansion of impervious coverage associated with redevelopment or site expansion projects. Impervious coverage is directly tied to the pollutant export characteristics of urban land; the higher the impervious coverage, the greater the pollution mass generated by that unit of land.

Explanation of Cash Dedication Calculations

The following is an explanation for calculation of cash dedication amounts for each of the four examples shown in Section 6.7 of the Local Water Management Plan.

1. **Example:** Two-acre new medium-density residential development (50% impervious coverage)

   ### Explanation:

   Based on a development area of 2 acres and an impervious coverage of 50% as well as a simple pro-rata adjustment to account for the small size of the development, the PONDSIZE model generates a hypothetical pond 0.10 acres in area with a wet volume of 0.241 acre-feet (.241 acre-feet X 1613 yds^3/acre-foot = 388 yds^3). Since the development is residential, the pond area of 0.102 acres is multiplied by $150,000/acre (see Section 6.7) to give $15,270. The pond volume of

388 yd^3 is multiplied by the unit pond volume cost of \$4/yd^3 (see Section 6.7) to give \$1,550. The sum of these amounts is \$16,820. The appurtenance cost is \$3,360 (the lesser of 20% of this amount or \$4,000). Thus, the total cash dedication is approximately \$20,190.

2. **Example:** Four-acre commercial redevelopment (from 75% to 80% impervious coverage)

Explanation:

Using the same model inputs as above but adjusting the impervious coverage to 80%, the PONDSIZE model generates a hypothetical pond area of 0.281 acres, with a wet volume of 0.695 acre-feet (1122 yd^3). The development is commercial, so the pond area of .281 acres is multiplied by \$200,000/acre to give \$56,200. The pond volume of 1122 yd^3 is multiplied by \$4/yd^3 to give \$4,490. The sum of these amounts is \$60,690. The appurtenance cost is the lesser of 20% of this figure (\$12,140) or \$4,000. Thus the total cash dedication amount is \$56,200 + \$4,490 + \$4,000 = \$64,690.

3. **Example**: Two-acre commercial redevelopment project with no increase in impervious coverage

Explanation:

The City will not require a water quality cash dedication when a redevelopment project does not increase the existing impervious percentage. The purpose of this standard is to discourage increases in impervious coverage for redevelopment projects.

Appendix D
City of New Hope Design Guidelines

Design Guidelines

Table of Contents

Purpose and Background

In general, buildings within New Hope should provide interest at the street level, create distinct street corners, demonstrate the use of high quality materials, and enhance the overall pedestrian experience on the street.

The New Hope Design Guidelines serve three primary functions:

1) To guide developers or property owners proposing expansions, renovations, or new construction of buildings or parking in commercial, industrial, and multifamily residential areas.
2) To facilitate dialog between the city and developers/property owners to achieve creative design solutions.
3) To assist city officials, commissioners, and staff in reviewing development proposals.

The guidelines, by definition, are a set of recommended design goals for new and existing buildings and sites. The guidelines set forth the general desired character for commercial, industrial, and multifamily residential properties, suggesting overall character without dictating specific design requirements.

The primary purpose of the guidelines is to:

- Reinforce the community's vision for development
- Foster high quality architecture and site planning
- Encourage creativity in accomplishing design goals
- Protect public and private investment in buildings and infrastructure

Purpose and Background

Implementation

The guidelines will be linked to New Hope's Comprehensive Plan and Zoning Ordinance. Compliance with the guidelines will be determined through the city's design review process.

Applicability

The guidelines apply to all commercial, industrial, mixed-use, and/or multifamily residential buildings with 3 or more units and to the following activities:

- New construction
- Any exterior changes
- Any development or expansion of parking areas that would result in a lot with more than 4 parking spaces

If New Hope City Code does not require review by the Planning Commission and/or approval by the City Council for a given alteration, such as repainting, facade changes, or expansions of no significant size (less than 25 percent building), the alternation may be handled administratively, as determined by the city manager or designee. The administrative review process might involve review by the city's design and review committee. The guidelines apply only to the buildings or site elements being developed or altered.

The guidelines are **mandatory**; however, it is understood there will often be many ways to achieve the intent of the guidelines. The city may permit alternative approaches that, in its determination, meet the objectives of the design guidelines. The city may also waive any guideline when specific physical conditions of the site or building would make compliance difficult or inappropriate.

Design Districts

Five design districts have been established. Generally, the guidelines apply to all districts, unless otherwise noted. The City Center and Highway districts are geographic areas, while the General Commercial, Industrial, and Multifamily districts are based on land use.

1) The **City Center District** centers on the intersection of Winnetka and 42nd avenues, extending north to 45th Avenue, south to Quebec Avenue, west to Boone Avenue, and east to Louisiana Avenue. The City Center serves as the primary commercial area in the city, and offers many opportunities for redevelopment and enhancements.
2) The **Highway Commercial District** extends the full length of the city along Highway 169 from 62nd Avenue to Medicine Lake Road.
3) The **General Commercial District** includes all commercial properties not included in the City Center or Highway districts. The majority of the commercial properties within this district line Winnetka Avenue, Bass Lake Road, 42nd Avenue and 62nd Avenue, with three primary commercial nodes located along Winnetka Avenue at Bass Lake Road, 36th Avenue, and Medicine Lake Road.
4) The **Industrial District** includes all industrial properties in the city. Most of the industrial uses are concentrated in three areas: 1) Science Industry Park, located in the northwest portion of the city around Science Center Drive; 2) along the C.P. rail line running east and west across the city's northern portion; and 3) along the C.P. rail line running north and south across the city's eastern portion.
5) The **Multifamily Residential District** includes all multifamily residential properties in the city. Multifamily homes are mostly located in R-3 (Medium Density Residential) and R-4 (High Density Residential) Zoning Districts.

Facade Treatments

ALL DISTRICTS

Objective: *To add visual interest and variety, emphasize the pedestrian scale, and avoid long, monotonous facades.*

Defined Base, Middle, and Top

Buildings should have a well-defined base, middle, and top. The base or ground floor should appear visually distinct from the upper stories through the use of a change in building materials, window shape or size, an intermediate cornice line, an awning, arcade or portico, or similar techniques. The base or ground floor of the building should include elements that relate to the human scale, including texture, projections, doors, windows, awnings, canopies, or ornamentation.

Distinct Modules

The primary facade(s) of buildings of 40 feet or more in width should be articulated into smaller increments through the use of different textures, division into storefronts with separate display windows, ornamental features such as arcades or awnings, or by division of the building mass into several smaller segments.

Awnings

Where awnings are used, canvas or fabric awnings are preferred. Awnings should closely complement the building's architectural character and aesthetics.

Commercial building with elements that relate to the human scale, such as archways, windows, and awnings.

Mixed-use building with distinct top, middle, and ground floor, distinct horizontal modules, interesting corner treatment, a variety of window shapes and decorative awnings.

Ground Level Expression

ALL DISTRICTS

Objective: *To create visual interest, opportunties for sociability, and overall pedestrian safety and comfort.*

Ground level expression refers to the way in which a building meets the street. Methods should be used to distinguish the ground floor of a building from upper floors, such as creating an intermediate cornice line, using different building materials or detailing, and using awnings, trellises, or arcades. Windows and clear entrances may also be used to enhance a building's appearance on the street, and may be further augmented by pocket parks, outdoor cafe seating, and plantings.

To create an increased sense of enclosure, all buildings shall have a minimum cornice height of 16 feet. Two and three-story buildings are encouraged.

Awnings and defined outdoor seating to create interest.

Outdoor cafe, awnings, and entry face on the street.

Useful and vital pocket park.

Windows and detailing used to enhance the building appearance and create visual interest.

Transparency: Window and Door Openings

ALL DISTRICTS

Objective: *To enliven the streetscape and enhance security by providing views into and out of buildings with windows and door openings.*

Window and Door Design

- Windows should be designed with punched and recessed openings to create a strong rhythm of light and shadow.
- Mirrored glass or glass block should not be used on street-facing facades. Glazing in windows and doors should be clear or slightly tinted, allowing views into and out of the interior.
- Window shape, size, and patterns should emphasize the intended organization of the facade and the definition of the building.
- Display windows at least three feet deep may be used to meet these requirements, but not windows located above eye level.

CITY CENTER AND GENERAL COMMERCIAL DISTRICTS

For commercial or mixed-use buildings, window and door openings shall comprise at least 30 percent of the area of the ground floor of the primary street facade. A minimum of 20 percent of any two sides or rear facades at ground level shall consist of window and door openings designed as specified above. A minimum of 15 percent of all upper story facades shall consist of window or balcony door openings designed as specified above.

HIGHWAY DISTRICT

Where commercial or office uses are found on the ground floor, at least 20 percent of the ground floor primary (street-facing) facade and 15 percent of each side or rear facade shall consist of window and door openings designed as specified above. Note that spandrel glass may be used on up to half the window and door surfaces on any building facade.

MULTIFAMILY RESIDENTIAL DISTRICT

For multifamily residential buildings, a minimum of 20 percent of primary (street-facing) facades and 15 percent of each side or rear facade shall consist of window and door openings designed as specified above.

Entries

ALL DISTRICTS

Objective: *To establish the visual importance of the primary street entrance and to ensure that entries contribute to the visual attractiveness of the building and are readily visible.*

Primary building entrances on all buildings should face the primary abutting public street or walkway, or link to that street by a clearly defined and visible walkway or courtyard. Additional secondary entrances may be oriented to a secondary street or parking area. In the case of a corner building or a building abutting more than one street, the street with the higher classification shall be considered primary. The main entrance should be placed at sidewalk grade. Entries shall be designed with one or more of the following:

- Canopy, portico, overhang, arcade or arch above the entrance
- Recesses or projections in the building facade surrounding the entrance
- Peaked roof or raised parapet over the door
- Display windows surrounding the entrance
- Architectural detailing such as tile work or ornamental moldings
- Permanent planters or window boxes for landscaping

Main entrance clearly defined by an arcade and enhanced with planters.

MULTIFAMILY RESIDENTIAL DISTRICT

For multifamily residential buildings, additional porches, steps, roof overhangs, hooded front doors or similar architectural elements should be used to define the primary entrances to all residences.

Well-defined entry with architectural detailing, visually notable raised roof line, and permanent planters.

Roof Design

ALL DISTRICTS

Objective: *To add visual interest and variety and to minimize views of rooftop equipment from public streets and pedestrian ways.*

Roof design

A building's roofline can establish its individuality and interest within the context of commercial or industrial areas, and variety in rooflines from building to building can add visual interest to mixed-use and residential areas. Some suggested techniques that add interest include varying heights and cornices within an otherwise unified design scheme, using roofline changes to note entrances or commercial bays, and establishing contrasting rooflines at street corners.

Rooftop equipment

All rooftop equipment shall be screened from view from across adjacent streets 15 feet behind the curb or from adjacent properites at the property line. Preferably, rooftop equipment should be screened by the building parapet, or should be located out of view from the ground. If this strategy is not possible, the equipment should be grouped behind an enclosure and set back a distance of 1 1/2 times its height from any primary facade fronting a public street. Screens shall be of durable, permanent materials (not including wood) that are compatible with the primary building materials.

Exterior mechanical equipment, such as ductwork, shall not be located on primary building facades.

High quality materials and articulated roofline.

Variety of heights and cornice treatments within unified development.

Building Materials and Colors

ALL DISTRICTS

Objective: *To ensure that high-quality, durable, and authentic building materials are used and that building colors are aesthetically pleasing and compatible with their surroundings.*

Building Colors

Building colors should accent, blend with, or complement the surroundings. Principal building colors should generally consist of subtle, neutral, or muted colors with low reflectance (e.g. browns, grays, tans, and dark or muted greens). "Warm-toned" colors are encouraged because of their year-round appeal. No more than two principal colors should be used on a facade or individual storefront. Bright or primary colors are acceptable when determined through the design and review process to be appropriate for the site and building use.

Multifamily residential with decorative door and window treatments, metal railings and a variety of building materials.

ALL COMMERCIAL AND RESIDENTIAL DISTRICTS

Building Materials

All buildings should be constructed of high-quality materials.

- **The primary building materials** should cover at least 60 percent of the facade. The materials must be integrally colored and may consist of brick, natural stone, precast concrete units, architectural precast concrete panels, or glass.
- **Secondary building materials** should cover no more than 30 percent of the facade and may consist of decorative block, stucco, or EFIS.
- **Accent materials** may be used on up to 10 percent of any of the building's facades. These materials may include door and window frames, lintels, cornices, architectural metalwork, glass block, copper flashing, or similar materials.

In addition to the materials listed above, residential buildings may also use painted wood lap siding, painted wood shakes, or synthetic wood siding resembling horizontal lap siding.

Materials to avoid:

- Unadorned plain or painted concrete block
- Unadorned precast concrete panels
- Prefabricated steel or sheet metal panels
- Aluminum, vinyl, fiberglass, asphalt or fiberboard (masonite) siding

INDUSTRIAL DISTRICT

A variety of building materials should be used to provide visual interest. Wall materials capable of withstanding vandalism or accidental damage should be chosen. Pole buildings/postframe construction (agriculture buildings) and exposed metal finished buildings are not permitted.

Franchise Architecture

ALL DISTRICTS

Objective: *To encourage building design that supports the city's design goals.*

Franchise establishments typically desire a specific architectural motif in order to emphasize consistency in their network and attract regular customers. In many cases, this standardized architecture conflicts with a unique regional architecture and character desired for the community. There are ways, however, of incorporating the franchise's desired signage and even some building treatments, while still encouraging the basic principles of commercial building design listed above. Franchises or national chains should follow these guidelines to create context-sensitive buildings that are sustainable and reusable.

Drive-through canopies and accessory structures, when required, shall be constructed of the same materials as the primary building, with the same level of architectural quality and detailing.

High-Quality Materials

Building with high-quality materials, understated wall signs, colorful canopies, and adequate landscaping.

Prototypical Franchise Logo and Color Treatment

Simple building with interesting corner teatment, good materials, colorful awnings, and small wall signs.

Contextual Design

Building design sensitive to context created with landscape and pedestrian walkways, pedestrian scale signs, awnings, and high-quality materials.

Building Placement/ Site Planning

ALL DISTRICTS

Objective: *To orient buildings toward the primary street to improve walkability and attractiveness to pedestrians.*

CITY CENTER DISTRICT

All buildings should have a well-defined front facade with primary entrances facing the street. Buildings should be aligned so that the dominant lines of their facades parallel the lines of the street. Single-use buildings must be less than 10,000 square feet in area, except by CUP; and buildings should occupy at least 60 percent of the lot frontage.

Building facades should be flush with the sidewalk or set back no more than 10 feet for at least 60 percent of the length of their front facades. At intersections, these buildings should "hold the corner"—that is, have street facades at or near the sidewalk on both streets.

GENERAL COMMERCIAL AND HIGHWAY DISTRICTS

Buildings should have a well-defined front facade with entrances facing the street. Larger buildings (30,000 square feet or more in size) may be oriented perpendicular to the street provided that at least one entrance facing the street is provided. Buildings may be set back a maximum of 85 feet from the sidewalk to allow for 2 rows of parking and drive aisles plus landscaped frontage. This setback may be increased in cases where topography or other physical conditions would prevent parking areas from being located to the rear of the building.

MULTIFAMILY RESIDENTIAL DISTRICT

Residential buildings may be oriented toward the primary street or toward internal streets or courts, with side facades parallel to the primary street. Facades parallel to the primary street should be well-detailed, and service areas should not be located along the primary street frontage. A transitional, semi-private area should be provided between the sidewalk and the front door of all residential buildings. Landscaping, steps, porches, grade changes, and low ornamental fences or walls should be used to provide increased privacy and livability for first floor units.

Parking Areas/Screening

ALL DISTRICTS

Objective: *To soften the appearance of parking areas and minimize the visual impact of parking lots when viewed from adjacent properties, streets, and sidewalks.*

Parking lot frontage on pedestrian streets should be minimized, and their edges and interiors should be extensively greened with a combination of hedges, ornamental railings, walls, bollards, trees, and other methods to screen parking from pedestrian spaces.

Parking areas shall be screened with a combination of landscape materials, landform, and decorative fencing or walls sufficient to screen parked cars on a year-round basis while providing adequate visibility for pedestrians. Internal parking lot landscaping should be incorporated when possible. Within off-street parking facilities with 50 or more stalls, irrigated landscaped islands or peninsulas or rain gardens should be provided at a rate of 180 square feet per 25 surface stalls or a fraction thereof. The islands or peninsulas must be contained within raised, curbed beds consistent with other applicable parking lot construction required by city ordinance. Depressed biofiltration islands shall be permissible provided a ribbon-style curb or other approved edging is installed, traffic control measures are taken, trash management plans are in place, and some vertical aspects - like trees or tall plantings - are provided to give the biofiltration island more visual appeal and break up the sight lines of the parking lot.

Strategies for shared parking between adjacent uses are encouraged, including taking advantage of peak and off-peak cycles, business hours, nighttime activities, special events and other needs.

Buffer Views

Railing, columns, seating, and various levels of planting are utilized where space is available.

Internal Landscaping

Simple, effective internal parking lot landscaping with trees in islands defines parking bays, improves image, and cools environment.

Define Edge

Physical barriers separate parking from the pedestrian space.

Parking Structures

ALL DISTRICTS

Objective: *To ensure that parking structures are compatible with the surrounding buildings and positively impact the streetscape.*

Parking structures should comply with all design guidelines for nonresidential buildings. Some guidelines to note include:

- If possible, the ground floor facade facing the main streets should be designed with architectural details similar to other nearby buildings.
- The parking structure facade should express top, middle, and base modules.
- Seasonal landscaping should be used to soften the design of the structure.
- All entrances (pedestrian and vehicular) should be clearly defined.
- Entrance drives to the parking structure should be located to minimize conflicts with pedestrian traffic.
- Parking structures should be designed to encourage active uses along the ground floor.

Treat as Buildings

Good architectural detailing, high- quality materials, defined entrance driveways, and readable signs.

Top, Middle, and Base

Ground floor offices, clearly defined entrances, and high-quality construction materials.

Pedestrians and Common Space

Common Space

Common gathering area with plantings, a water amentity, and seating.

ALL DISTRICTS

Objective: *To ensure that pedestrians and bicyclists have safe and convenient access to all business establishments and to enhance community interactions through the provision of usable common space.*

Pedestrian Areas

The coordination of public and private pedestrian treatments is required. Sidewalks may be required along all street frontages. A well-defined pedestrian path shall be provided from the sidewalk to each principal pedestrian entrance of a building. Walkways shall be located so that the distance between the street and entrance is minimized. Walkways shall be at least 5 feet in width, and shall be distinguished through pavement material from the surrounding parking lot. Walkways shall be landscaped with trees, shrubs, flower beds, and/or planter pots. Sidewalks of at least 5 feet in width shall be provided along all building facades that abut public parking areas.

Green space is especially encouraged at the corners of main intersections in the city. These areas should be intensely landscaped to hold the corner and enhance the pedestrian environment and visual appearance from the street.

Common Space

The creation of common space is recommended, including plazas, courtyards, and landscaped seating areas. Elements within common spaces might include sculptures, built-in benches, pedestrian-scale lighting, public art, and colorful paving. Common spaces should be visible and easily accessible, provided with adequate light, and sheltered from adverse wind.

Landscaping and Site Improvements

ALL DISTRICTS

Objective: *To ensure private landscaping and site improvements enhance the visual appearance of the community, complement existing and planned public improvements, and aid in managing stormwater runoff volume.*

Landscape improvements and site furnishings, including lighting, seating, planters, trees or shrubs, trash receptacles, and similar elements, shall be defined and utilized throughout the city.

Street trees should be planted within a landscaped boulevard, generally spaced no more than 30 feet apart (see Preferred Trees lists on page 17 and Appendix A). All front yards should be intensely landscaped.

Decorative boulevard treatment with trees and perennial plantings.

Semi-public open space with seating, landscaping, and water feature.

Street trees and plantings highlight entrance to building.

Residential public open space with trees and plantings.

Preferred Trees

Freeman maple tree

An excellent shade tree appropriate for parkway planting, the Freeman maple is easily grown in a variety of soil conditions.

ALL DISTRICTS

Objective: *To ensure trees planted in New Hope thrive and contribute to an attractive landscaping system throughout the city.*

Trees represent an important part of the landscaping throughout the city. There are a number of characteristics to consider when selecting trees for planting in New Hope including:

- Hardiness
- Mature size and growth habit
- Sidewalk right-of-way
- Electric right-of-way
- Salt tolerance
- Pest/disease resistance
- Cleanliness/litter problems
- Rooting habits
- Maintenance requirements
- Soil compatibility

Based upon these considerations, the following trees are allowed in the boulevard. When locating boulevard trees in commercial areas, the visibility of existing and future businesses should be considered. Appendix A includes an expanded list of preferred trees, which would be suitable for planting in other areas of the city.

Preferred Boulevard Trees

American elms (resistant) *(Ulmus americana) "Valley Forge" "New Harmony" "Princeton"*
Basswood (*Tilia americana)*
Black ash (*Fraxinus nigra)*
Bur oak (*Quercus macrocarpa)*
Corktree (*Phellodendron species)*
Freeman maple *(Acer x freemanii)*
Ginkgo (male only) (*Ginkgo biloba)*
Hackberry *(Celtis occidentalis)*
Honeylocust (thornless) (*Gelditsia triacanthos var. inermis)*
Ironwood *(Ostrya virginiana)*
Kentucky coffeetree *(Gymnocladus dioicus)*
Northern pin oak (*Quercus ellipsoidalis)*
Ohio buckeye *(Aesculus glabra)*
Red maple *(Acer rubrum)*
Red oak (*Quercus rubra)*
River birch (*Betula nigra)*
Sugar maple (*Acer saccharum)*
Swamp white oak *(Quercus bicolor)*
White ash (*Fraxinus americana)*
White oak *(Quercus alba)*

Location and Screening of Service, Loading, Drive-Through, and Storage Areas

ALL DISTRICTS

Objective: *To screen views from and minimize noise impacts on surrounding streets and properties.*

Any outdoor storage, service, drive-through, or loading area shall be screened as provided in the Zoning Ordinance and located in the side or rear of the main building.

Loading docks, drive-throughs, truck parking, HVAC equipment, transformers, trash collection, and other service functions shall be incorporated into the design of the building or screened with walls of design and materials similar to the principal building. Landscape material shall also be incorporated to create a screen of at least 6 feet in height. This screening will help ensure that the visual and noise impacts of these functions are fully contained.

Businesses with service bays for auto repair and similar uses should locate bays to the side or rear of the building, when feasible.

Dumpster Enclosure

Dumspter enclosure located in the rear of the building and constructed of the same materials as the main building.

Lighting

Distinctive light fixture complements high quality materials and relates to streetscape.

ALL DISTRICTS

Objective: *To ensure quality lighting design through glare reduction, minimum overspill, and the use of pedestrian-scale lighting fixtures, while maintaining adequate light levels for safety.*

Exterior light fixtures should be selected and located to minimize glare and negative effects upon the night character in the community. Lighting of structures should be minimized to reduce ambient light pollution from above and below.

The style of lighting fixtures should be compatible with the architecture of nearby buildings. Lights attached to buildings should be screened by the building's architectural features to eliminate glare onto adjacent properties. Pedestrian scaled lighting, not exceeding 15 feet in height, should be located adjacent to walkways and entrances to buildings.

Parking lot illumination should consist of a combination of commercial grade parking lot and pedestrian style fixtures. Pedestrian fixtures should be used for lighting internal parking lot walkways. Parking lot fixtures should be employed to illuminate parking bays and drive aisles.

Lighting, continued

Parking lot illumination should achieve levels to provide safety while minimizing overlighting and excessive spillover of ambient light onto adjacent properties. Cutoff fixtures should be located below the mature height of trees in parking lot islands to prevent ambient "glow" or light pollution from adjacent properties. Evenly distributed illumination should be provided.

Appropriate light sources:

- Incandescent
- Halogen
- High-pressure sodium
- "Warm" metal halide

Inappropriate light sources:

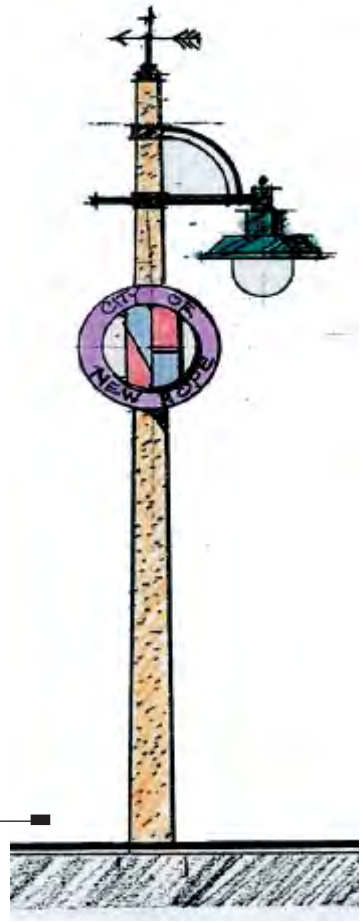
- Fluorescent
- Neon
- Colored
- Low-pressure sodium
- Mercury vapor

Appropriate light fixture types:

- Pole mounted
- Recessed
- Shield spotlighting

Inappropriate light fixture types:

- Internally lit awnings
- Blinking or flashing



Pedestrian level light from 42nd Avenue Streetscape project.

Signs

ALL DISTRICTS

Objective: *To encourage signs that are architecturally compatible with the style, composition, materials, colors, and details of the building, and with other signs on nearby buildings. Signs should be an integral part of the building and site design.*

Wall and projecting signs

Signs should be positioned so they are an integral design feature of the building and to complement and enhance the building's architectural features. Signs should not obscure or destroy architectural details such as stone arches, glass transom panels, or decorative brickwork. Signs may be placed:

- In the horizontal lintel above the storefront windows
- Within window glass, provided that no more than 33 percent of any individual window is obscured
- Projecting from the building
- As part of an awning
- In areas where signs were historically attached

Projection Sign

Monument Sign

Canopy Sign

Signs, continued

Shape- Wall signs should generally be rectangular. In most cases, the edges of signs shall include a raised border that sets the sign apart from the building. Individual raised letters set onto the sign area surface are also preferred. Projecting signs may be designed in a variety of shapes.

Colors- Sign colors shall be compatible with the building facade to which the sign is attached. No more than three colors should be used per sign, unless part of an illustration. To ensure the legibility of the sign, a high degree of contrast between the background and letters is preferred. A combination of soft/neutral shades and dark/rich shades (see Building Colors standard) are encouraged.

Materials- Sign materials should be consistent or compatible with the original construction materials and architectural style of the building facade on which they are to be displayed. Natural materials such as wood and metal are more appropriate than plastic. Neon signs may be appropriate for windows.

Illumination- External illumination of signs is permitted by incandescent, metal halide, or fluorescent light that emits a continuous white light. Light shall not shine directly onto the ground or adjacent buildings. Neon signs are permitted. Internally lit awnings are not permitted. Internally lit box signs and variable electronic message signs are discouraged.

Free-standing signs- Ground or monument signs are encouraged rather than pylon signs. Sign materials, colors, and architectural detailing should be similar to those of the principal building. The area around the base of the sign should be landscaped.

Monument sign

Commercial monument sign with readable graphics and quality materials.

Hierarchy of Street Treatments

ALL DISTICTS

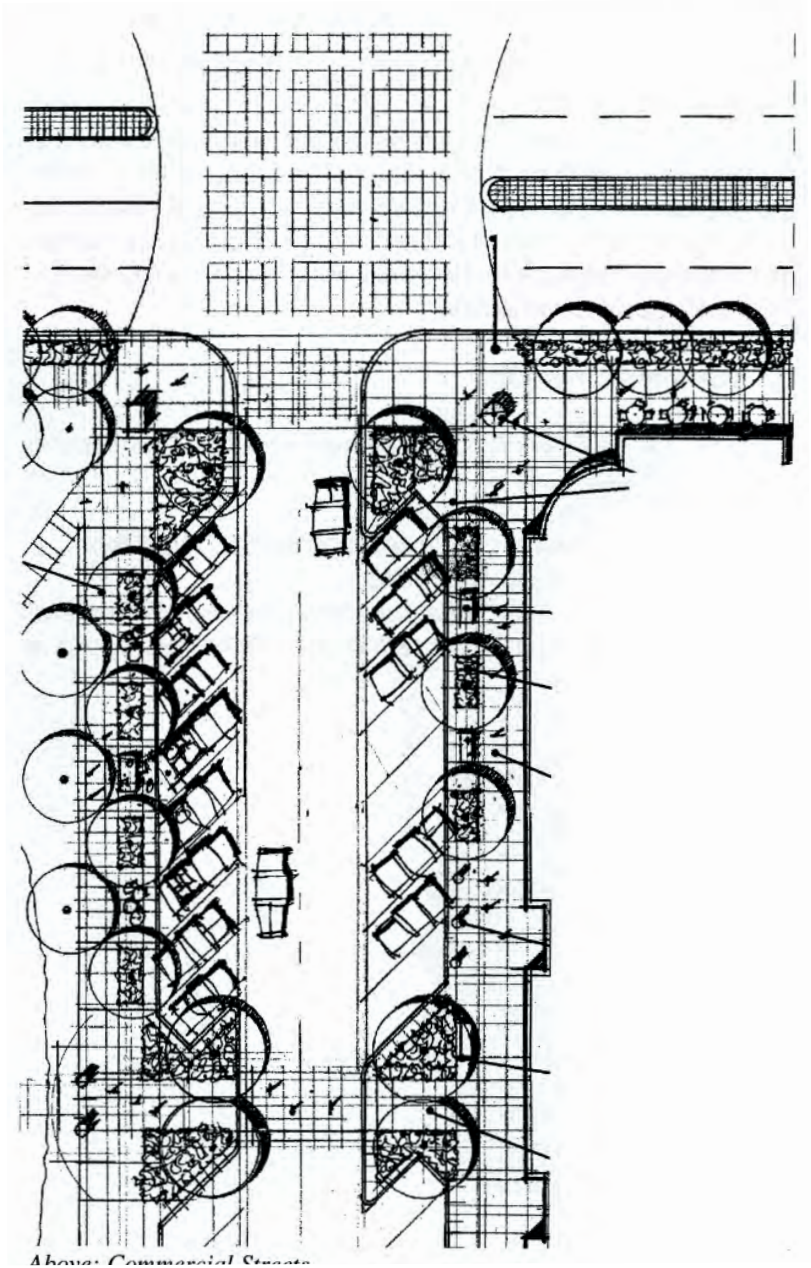
Objective: *To ensure that streets create a backbone for the community, establish a setting for casual meetings, and provide open space for public gatherings and festivals.*

Streets serve as the stage where people interact within the public realm. The way in which a street is designed often determines the level and quality of this interaction. The streets located within the commercial and industrial areas in New Hope establish the city's identity and open space framework.

Each street in the city has a different type of streetscape to establish the character of the street and assist in navigation. The term "streetscape" refers to an area's physical setting, which is shaped by the relationships and design of buildings, parking lots/structures, streets, sidewalks and landscaping, as well as street furniture, such as lamps, benches, planters, kiosks, bus shelters, and public art. A hierarchy of streetscape treatments will highlight and respond to the different districts and street functions within the city. They include:

A. Gateways and Parkways
B. Commercial Streets
C. Local and Residential Streets

The design intent of each of the various street types follows.



Above: Commercial Streets

A. Gateways and Parkways

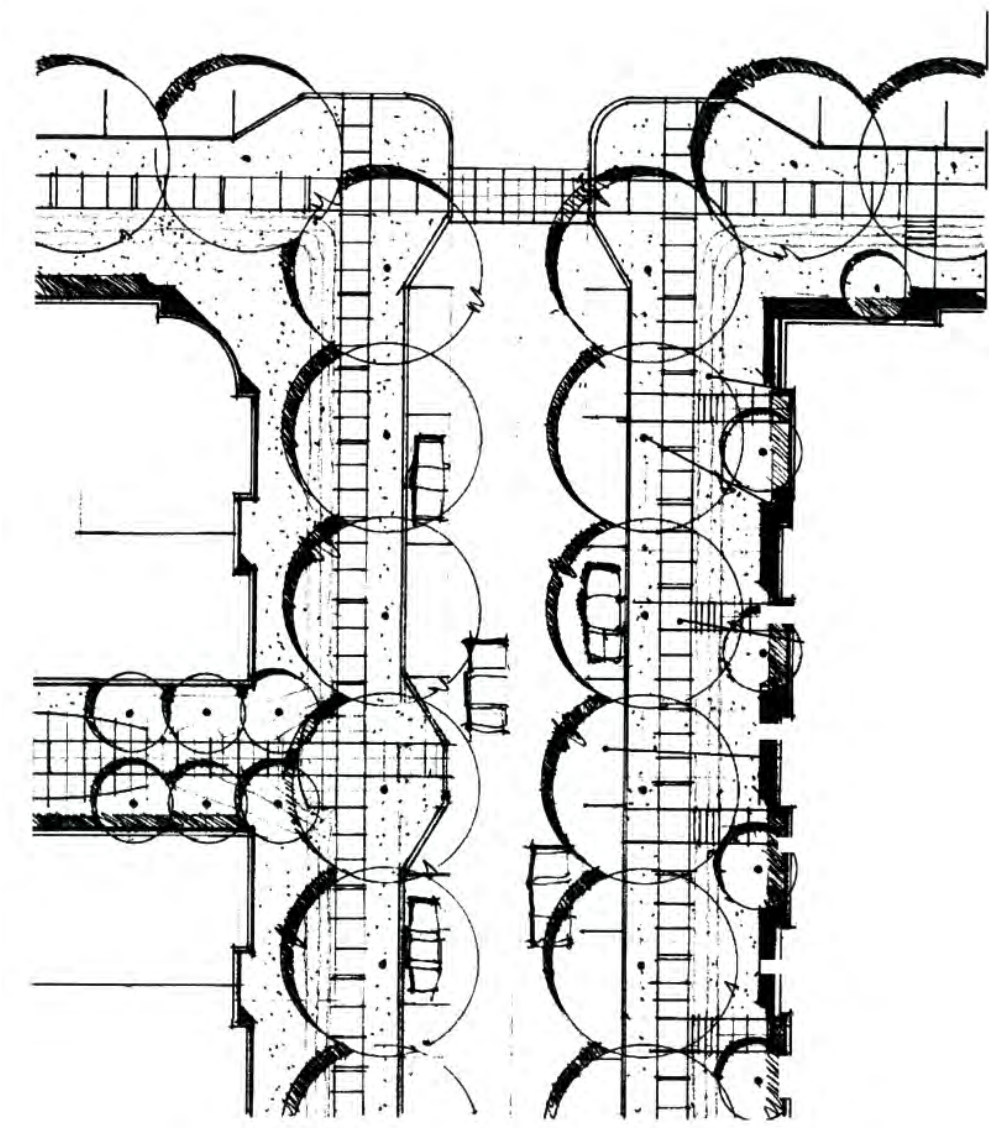
Tree-lined boulevards and medians will create a distinctive parkway character and provide gateways to various areas in the city. Primary bicycle pathways will also be identified and located throughout the city. Treatments include:

- Pedestrian and bicycle linkages to surrounding development, transit facilities, and open spaces
- Landscaped medians
- Parallel parking bays defined with curb bump-outs, where possible
- Tree-lined boulevards
- Walkways ranging in width between 5 and 8 feet
- Pedestrian-scale lighting
- Directional signage, if applicable

B. Commercial Streets

Those streets located within the core commercial area will serve the local businesses and public open space. Where possible, on-street parking should be incorporated to maximize the number of parking spaces within the core area, while providing traffic calming measures. The sidewalks lining these commercial streets will possess the most intense streetscape treatment including:

- Generous sidewalk space that can accommodate outdoor cafes, farmers' markets, community festivals, public art, sidewalk sales, and other activities.
- Streetscape elements, such as street trees, pedestrian-scale lighting, kiosks, directional signs, colorful banners, sculpture, and benches.



Above: Residential Streets

C. Local & Residential Streets

Local and residential streets serve as linkages between the mixed-use centers and residential districts, outlying commercial uses, and parking facilities. Local and residential streets have the lowest intensity of streetscape treatments. Common streetscape elements will provide continuity between the different areas.

Treatments include:

- Parallel parking bays defined with curb bump-outs, where possible
- Tree-lined boulevards
- Walkways ranging in width between 5 and 8 feet
- Pedestrian-scale lighting
- Traffic calming measures, such as neck downs and raised speed tables with crosswalks at intersections

Transit Facilities

ALL DISTRICTS

Objective: *To support and encourage the use of public transportation by adding quality transit facilities along main transit routes in the city.*

Transit related facilities should be incorporated into development projects where appropriate. Transit facilities include transit shelters, courtesy benches, bus schedules, wayfinding signage, pedestrian walkways, lighting, and other elements that facilitate the use of public transit.

Transit facilities should be located for convenient access by transit users, but should not obstruct views or create conflicts with the city's street and sidewalk maintenance procedures. Transit facilities should not encroach on existing sidewalks or trails.

Courtesy Benches

When installed, courtesy benches must comply with the requirements of New Hope City Code Section 6-16. Benches should be installed on durable, level surfaces and designed with attention to their surroundings.

Transit Shelters

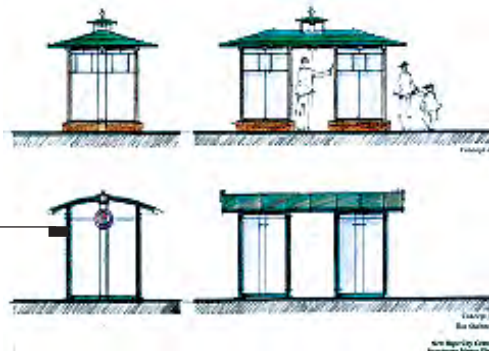
The installation of quality transit shelters is strongly encouraged along main transit routes for the convenience and comfort of transit users. A concrete pedestrian landing that extends the full length of the structure must be provided. The landing should extend to the curb and must accommodate persons with disabilities. When appropriate, shelters should include amenities that encourage transit use, such as benches, lights, and heat.

Courtesy Bench

Quality courtesy bench installed on a durable, level surface.

Transit Shelters

Transit shelters designed to integrate with existing buildings in the New Hope City Center area.



Stormwater Treatments

ALL DISTRICTS

Objective: *To promote stormwater systems designed as amenities that serve as attractive enhancements for the community, while achieving the city's water quality standards.*

Innovative stormwater management strategies are strongly encouraged. Several innovative technologies are available to improve stormwater quality, while offering benefits such as lowering peak flow velocity and volume, lessening possibilities of erosion, filtering pollutants, silt, phosphorous and nitrogen, and reusing water for irrigating parks and gardens rather than installing expensive systems. Stormwater treatment strategies should also serve other purposes such as creating community amenities that enhance common spaces, supporting biodiversity, and reducing the capital costs for municipal infrastructure. All stormwater strategies employed in the city must meet the water quality standards of the New Hope Surface Water Management Plan.

When designing a stormwater system for properties in New Hope, the following site planning principles should be considered:

Minimize Total Impervious Area- Impervious areas prevent infiltration of rainfall and act as pollutant collectors between storms, while vegetated surfaces tend to treat or uptake pollutants. Total impervious surface should be reduced by locating parking areas beneath buildings, minimizing building footprints by adding stories, and by using porous paving materials rather than traditional asphalt and concrete for parking lots, roads, sidewalks, and driveways.

Minimize Direct Connection Between Impervious Surfaces- Connected impervious surfaces result in rapid stormwater flows. Driveways, sidewalks, and streets may be sloped so that runoff drains first to lawns or vegetated swales.

Plant More Trees- Trees and shrubs can capture as much as 35 percent of the annual rainfall through absorption or evaporation. Roots provide a path for increased water infiltration as well.

Please refer to Appendix B for additional guidelines and recommendations for the design of stormwater treatment systems in New Hope.

Appendix A:

Preferred Tree List

CITY OF NEW HOPE PREFERRED TREE LIST

The following tree list has been compiled by the New Hope city forester to aid residents and businesses in the selection of trees that are acceptable in the city of New Hope. There are a number of important considerations when selecting trees. These include:

- Hardiness
- Mature size and growth habit
- Salt tolerance
- Pest/disease resistance
- Cleanliness/litter problems
- Rooting habits
- Maintenance requirements
- Soil compatibility

Based upon these considerations, the following plant materials are deemed suitable for planting in New Hope. Those trees recommended for planting within the public right-of-way are indicated with an "R". Those trees prohibited from the right-of-way have the post script "X". **The planting of understory deciduous trees and coniferous trees (overstory and understory) are prohibited within the public right-of-way unless approved by the city forester**. The plant materials that have been noted with an asterisk "*" are identified as less desirable species for planting in New Hope. Those trees that are native to Minnesota are indicated with an "n".

R *Acer x freemanii* – **Freeman maple**

X *Acer platanoides* – **Norway maple**
Rn *Acer rubrum* – **Red maple**
X*n *Acer negundo* – **Boxelder**
X*n *Acer saccharinum* – **Silver maple**
Rn *Acer saccharum* – **Sugar maple**
Rn *Aesculus glabra* – **Ohio buckeye**
Rn *Betula nigra* – **River birch**
n *Betula papyrifera* – **Paper birch**
Xn *Catalpa speciosa* – **Northern catalpa**
Rn *Celtis occidentalis* – **Hackberry**
Rn *Fraxinus americana* – **White Ash**
Rn *Fraxinus nigra* – **Black Ash**
Rn *Fraxinus pennsylvania* – **Green Ash**
R *Ginkgo biloba* – **Ginkgo** (Male only)
Rn *Gelditsia triacanthos var. inermis* –**Honeylocust (thornless)**

OVERSTORY DECIDUOUS TREES

Rn *Gymnocladus dioicus* – **Kentucky coffeetree**
Xn *Juglans nigra* - **Walnut**
n *Larix laricina* - **Tamarak**
Larix species – **Larch**
Xn *Morus rubra* – **Red mulberry**
Rn *Ostrya virginiana* – **Ironwood**
R *Phellodendron species* – **Corktree**
X *Populus deltoides "Siouxland"* – **Siouxland poplar (cottonless)**
Xn *Populus grandidentata* – **Bigtooth aspen**
X* *Populus species* – **All other poplars**
Xn *Populus tremuloides* – **Quaking aspen**
n *Prunus serotina* – **Black cherry**
Rn *Quercus alba* – **White oak**

Appendix A, continued:

Rn *Quercus bicolor* – **Swamp white oak**
Rn *Quercus ellipsoidalis* – **Northern pin oak**
Rn *Quercus macrocarpa* – **Bur oak**
Xn *Quercus palustris* – **Pin oak**
Rn *Quercus rubra* – **Red oak**
X* *Robinia pseudoacacia* – **Black locust**
X* *Salix species* – **Willow**
Rn *Tilia americana* – **Basswood**
X *Tilia cordata* – **Little leaf linden**
R *Ulmus americana "Valley Forge", "Princeton", "New Harmony"*– **American elms (resistance)**
X *Ulmus* hybrids – **Hybrid elms**

UNDERSTORY DECIDUOUS TREES

Acer ginnala – **Amur maple**
n *Amelanchier species* – **Serviceberry**
Carpinus caroliniana – **Blue beech**
Cercis canadensis – **Eastern redbud**
n *Cornus alternifolia* – **Pagoda dogwood**
n *Cornus racemosa* – **Gray dogwood**
Crataegus crus-galli var. inermis – **Cockspur hawthorn (thornless)**
X* *Elaeagnus angustifolia*– **Russian olive**
n *Euonymus alatus* – **Burning bush tree**
Hydrangea paniculata – **Hydrangea (tree)**
Maackia amurensis – **Amur maackia**
Magnolia acuminata – **Cucumbertree magnolia**
Magnolia stellata – **Star magnolia**
Malus species – **Crabapple (apple scab resistant ONLY)**
n *Prunus americana* – **American wild plum**
Prunus armeniaca var. mandshurica - **Apricot**
Prunus maackii – **Amur chokecherry**
Prunus nigra "Princess Kay" – **Princess Kay Plum**
Prunus cerasus "North Star" & "Meteor" – **Sour cherry**
Prunus sargentii – **Sargent cherry**
X* *Prunus virginiana "Canada Red"* – **Canada red chokecherry**
Pyrus species - **Pear**
X* *Salix matsudana "Tortuosa"* – **Corkscrew willow**
Xn *Salix discolor* – **Pussy willow**
Sorbus alnifolia – **Korean mountain ash**
Sorbus aucuparia – **European mountain ash**
Syringa reticulata – **Japanese tree lilac**
Viburnum lantana – **Mohican (wayfaring) tree**
n *Viburnum lentago* – **Nannyberry tree**

OVERSTORY CONIFEROUS TREES

n *Abies balsamea* – **Balsam fir**
n *Abies concolor* – **White fir**
n *Juniperus virginiana* – **Eastern redcedar**
n *Picea abies* – **Norway spruce**
n *Picea glauca* – **White spruce**
* *Picea pungens* – **Colorado spruce**
n *Pinus banksiana* – **Jack pine**
Pinus cembra – **Swiss stone pine**
Pinus nigra – **Austrian pine**
Pinus ponderosa – **Ponderosa pine**
n *Pinus resinosa* – **Red (Norway) pine**
n *Pinus strobus* – **Eastern white pine**
Pinus sylvestris – **Scotch pine**
Pseudotsuga menziesii – **Douglas fir**
n *Tsuga canadensis* – **Canadian hemlock**

UNDERSTORY CONIFEROUS TREES

Juniperus chinenses – **Chinese upright juniper**
Juniperus scopulorum – **Rocky Mountain juniper**
n *Thuja occidentalis* – **American arborvitae**
Pinus mugo – **Mugo pine**

Appendix B:

Stormwater Treatment Strategies

Stormwater systems can be designed as an amenity, a multiple use civic infrastructure that makes water processes legible, sustainable, and expressive. If stormwater is perceived as a replenishing amenity and resource, rather than a waste that should be hidden away, stormwater systems can incorporate earth and vegetation to serve as cleansing filters.

Several innovative technologies have been developed to ameliorate poor stormwater quality. Using these strategies to daylight stormwater processes benefits overall water quality by:

- Lowering peak flow velocity and volume
- Lessening possibilities of erosion
- Settling heavy metals and silt out of stormwater flow
- Filtering pollutants, silt, phosphorous, and nitrogen
- Regenerating groundwater
- Cooling water before it reaches a water body
- Reusing water for irrigating parks and gardens rather than installing expensive systems
- Ameliorating the heat island effect of urban areas

Other benefits include:

- Enhancing the amenity value of the community
- Supporting biodiversity at the street level by building an ecological structure
- Lowering capital costs for municipal infrastructure
- Educating the community about drainage and cleansing processes of degraded water
- Opportunities to incorporate art and education with the use of follies celebrating the hydrologic event
- Opportunities for practicing responsible regional watershed planning at the site scale
- Opportunities to create public gathering spaces at larger water collection areas, which celebrate the ephemeral qualities of a rainstorm or spring thaw
- Opportunities to create a common vocabulary of streetscape elements rooted in place through the use of native plants and the revelation of ephemeral climatic events

All stormwater strategies employed in the city must meet the water quality standards of the New Hope Surface Water Management Plan.

Appendix B, continued:

A. Detention Ponds or Marshes

Detention ponds and marshes detain and store stormwater runoff to allow for settling of particulate pollutants, vegetative uptake, and control of peak flood rates. They may be constructed above or below grade, and may be wet or dry. Although these systems control peak rates, they do not mitigate increased runoff volumes.

B. Infiltration

Infiltration systems intercept and reduce direct site surface runoff, allowing water to percolate back into the ground through coarse gravel, sand, or other filtering media. These types of systems control peak rates, help preserve existing on-site hydrology, maintain stream base flow, and recharge groundwater. Please note that New Hope's soils are predominately clay, which may make infiltration difficult in some cases.

Trenches- Trenches are shallow (2 to 10 feet deep) and are placed in relatively permeable soils that are backfilled with coarse stone, a sand filter, and lined with filter fabric. The trench surface can be covered and/or consist of gabion, stone, sand, or a grassed covered area with a surface inlet. Trenches allow for partial or total infiltration of stormwater runoff into the underlying soil.

Basins- Basins are depressions created by excavation, berms, or small dams for the short term ponding of surface runoff until it percolates into the soil.

Pervious Paving Systems- Pervious paving systems consist of strong structural materials, such as concrete or asphalt, regularly interspersed with voids which are filled with pervious materials such as sandy loam or grassed turf. These surfaces are underlain by soils capable of allowing infiltration. Pervious asphalt is not recommended for clay-rich soils since it easily clogs and thus necessitates frequent replacement.

Roof Downspout Systems- Roof downspout systems consist of small-scale chambers or variations of infiltration trenches that are specifically designed to accept and infiltrate roof drainage only. They should be covered with rip rap to dissipate the water's erosive energy.

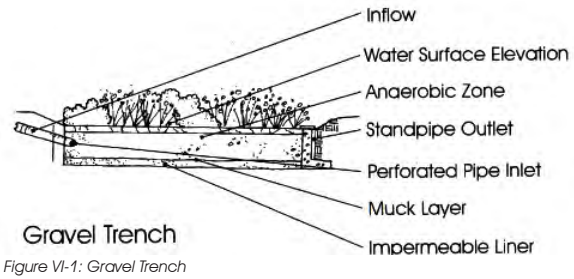


Figure VI-1: Gravel Trench
Source: Claytor

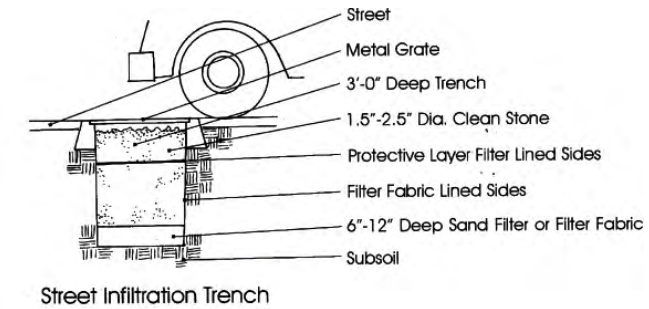


Figure VI-2: Street Infiltration Trench

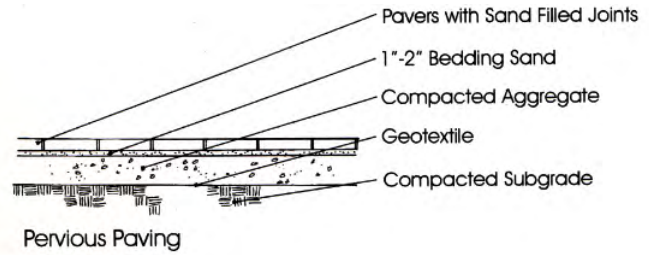


Figure VI-3: Pervious Paving

Appendix B, continued:

C. Biofiltration

Biofiltration systems use vegetation and/or sand and other natural filtration media to reduce pollutants in stormwater runoff. Filtration, infiltration, absorption, sedimentation, and biological uptake of stormwater pollutants are all methods utilized by biofiltration systems.

Vegetated Swales- Vegetative swales possess less than six percent side slopes and are wide and shallow to maximize flow residence time and promote pollutant removal. They are often used downstream from detention facilities, around parking lots, in parking lot medians, and along roadsides.

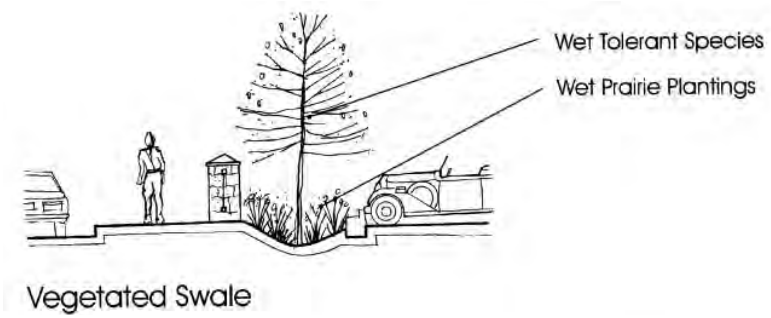


Figure VI-4: Vegetated Swale

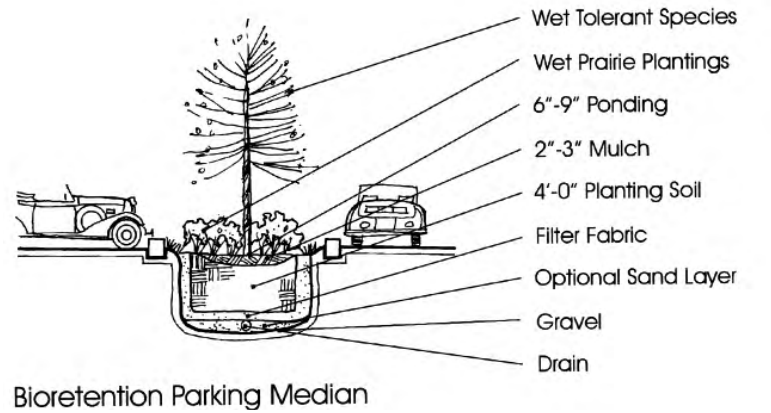


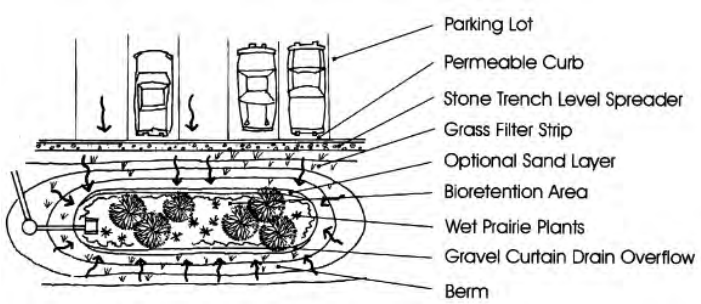
Figure VI-5: Bioretention Parking Median

Vegetated Filter Strips- Filter strips consist of vegetated sloped strips in which flow is distributed broadly along the length of the vegetated area as overland sheet flow. Requiring ample space to spread the flow over a wide area at a small depth, suitable areas for filter strips include areas along uncurbed roads, between parking lots and stormwater inlets, adjacent to vegetated swales, and upstream of infiltration facilities.

Media Filters- Media filters strain runoff through a medium, such as sand, peat, compost, or pelletized leaf compost, into an underdrain system that conveys treated runoff to a detention facility or to the point of ultimate discharge. They can be used in highly developed sites or be retrofitted to existing sites.

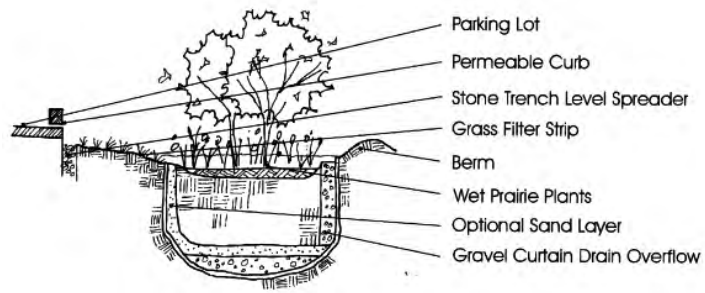
Catch Basin Filter Inserts- Catch basin filter inserts are suspended within catch basins and designed to strain sediment. Because they require high maintenance to avoid hydraulic failure, they are applicable only to a small drainage area.

Appendix B, continued:



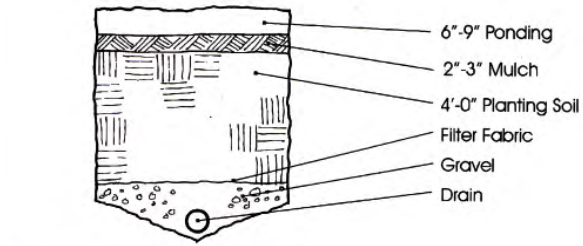
Bioretention Swale with Level Spreader & Grass Filter Strip- Plan

Figure VI-6: Bioretention Swale with Level Spreader and Grass Filter Strip - Plan
Source: Claytor



Bioretention Swale with Level Spreader & Grass Filter Strip- Section

Figure VI-7: Bioretention Swale with Level Spreader and Grass Filter Strip- Section
Source: Claytor



Bioretention Swale- Section

Figure VI-8: Bioretention Swale - Section
Source: Claytor

D. Multifunctional Systems

Multifunctional systems incorporate multiple stormwater treatments

Enhanced Swales and Ponds- Enhanced swales contain infiltration/filtration systems which consist of an infiltration pond with a layer of filter media (sand/crushed limestone) in their beds. They work best where soils are very coarse.

Bioretention- Bioretention systems consist of shallow landscaped areas that allow for ponding and filtration of water runoff. Treatment involves settling, vegetative uptake, and filtering as water passes through layers of sand, loam, and compost before infiltration or collection in underlying perforated pipes. Traditionally designed convex grassed medians/parkways and piping/catch basins may be replaced with concave bioretention gardens and vegetated stormwater channels.

Appendix B, continued:

E. Site Planning Principles

Minimize Total Impervious Area- Impervious areas prevent infiltration of rainfall and act as pollutant collectors between storms, while vegetated surfaces tend to treat or uptake pollutants. Total impervious surface may be reduced by locating parking areas beneath buildings, minimizing building footprints by adding stories, and using porous paving materials rather than traditional asphalt and concrete for parking lots, roads, sidewalks, and driveways.

Minimize Direct Connection Between Impervious Surfaces- Connected impervious surfaces result in rapid stormwater flows. Driveways, sidewalks, and streets may be sloped so that runoff drains first to lawns or vegetated swales.

Conduct Watershed-Based Zoning- Local governments can promote innovative storm water management by:

- Conducting land use master planning across scales to ensure that future growth is compatible with high water quality.
- Creating regulations that are preventative, rather than reactive, such as Best Management Practices, buffer regulations, limits on impervious surfaces, limits on curb and gutter, and require low irrigation and low fertilizer/pesticide plantings.
- Adopting sensitive area ordinances to provide for buffers and to ensure development does not occur in key areas such as steep slopes, floodplains, and wetlands.
- Reviewing municipal codes and making modifications to protect water quality.

Plant More Trees- Trees and shrubs can capture as much as 35 percent of the annual rainfall through absorption or evaporation. Roots provide a path for increased water infiltration as well.

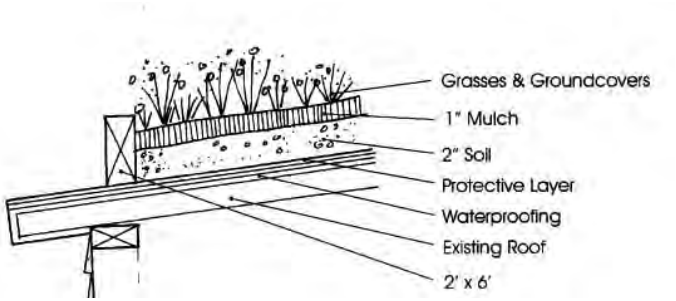


Figure VI-9: Eco-Roof
Source: Lipton

Use Rooftops for Stormwater Collection and Filtration- Eco-roofs cover all or a portion of a roof with grasses and ground covers and can be retrofitted to existing buildings with little

Appendix B, continued:

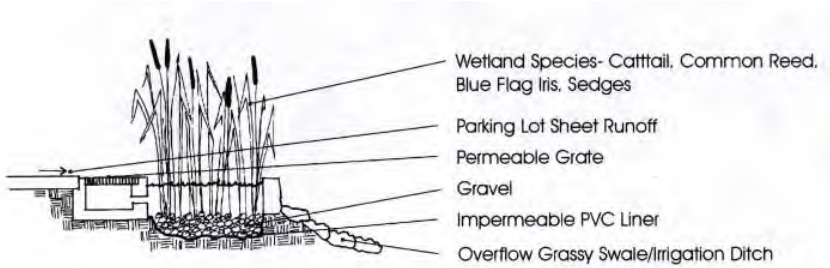


Figure VI-10: Wetland Runnel
Source: Hansen

or no structural reinforcement. This soft roof filters and reduces stormwater runoff volume, while enhancing the thermal and acoustic insulation of the building.

Use Native Plant Materials Appropriate to Soil Type and Wetness- Plants such as Cattails, Blue Flag Iris and Sedgegrass are site specific and respond to wet conditions. Such tall grasses shall be permitted by approved design landscaping. For more recommended plant species, reference the Minnesota Pollution Control Agency listing of plants for stormwater design at www.pca.state.mn.us/publications/manuals/stormwaterplants.html.

Sources:

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